

1966

A historical review and analysis of the Iowa State University landscape from 1858 to 1966

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A HISTORICAL REVIEW AND ANALYSIS
OF THE IOWA STATE UNIVERSITY LANDSCAPE
FROM 1858 TO 1966

by

Robert William Werle

A Thesis Submitted to the
Graduate Faculty in Partial Fulfillment of
The Requirements for the Degree of
MASTER OF LANDSCAPE ARCHITECTURE

Major Subject: Landscape Architecture

Signatures have been redacted for privacy

Iowa State University
of Science and Technology
Ames, Iowa

1966

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I. THE PROBLEM

A. Objective

1. A historical landscape review

The purpose of this study is to determine the designed segments of the historical central campus landscape. This study will record the esthetic and functional reasons for the major changes in this landscape, and it will indicate the method by which the change was achieved.

As an act of conservation, this study will record historical landscape designs with the intent that the existing portions of these designs may generally find a place in the developing university scheme.

2. A historical landscape analysis

The purpose is also to gain an understanding of the historical landscape philosophy as an influence upon the contemporary landscape philosophy. As an analysis, this study will be concerned with the clarity of the landscape as a visual expression of a philosophy. From a general point of view, this study will investigate the historical landscape as a force in developing a strategy for a future landscape concept.

B. Scope

1. Landscape

In 1874 Professor H. H. McAfee, an early Professor of Horticulture at the Iowa Agriculture College, described the

landscape as "all that the eye takes in of the country at a single view." (27, 1874, p. 69)

A prominent landscape architect of the early 1900's, Mr. O. C. Simonds, has noted of the landscape that

It includes all individual buildings and the thoroughfares that make them accessible, all public grounds such as city squares, school and church yards, parks, cemeteries, railroads, rights of way, golf courses, national monuments, parks and forests, all streams, and lakes, all shores and all land upon which one may walk. It includes the atmosphere, with its rain and sunshine, its fogs and clouds, its hail and snow, its storms and calms. It comprises night and day and all the seasons. It includes the rocks, and all material and living things. (57, p. 1)

He continues by depicting the improved landscape as a

Composition with lights and shades in proper relation to each other and with harmonious outlines and colors. (57, p. 8)

The Head of the Department of Landscape Architecture at Iowa State College from 1923 to 1950, Professor P. H. Elwood, said of the improved landscape "that it is a medium of refined pleasure in which land and landscape are made fit for human use and enjoyment." (17, p. 3)

The landscape is a view which stretches to the distant horizon; it is esthetic. The landscape is lights and darks; it is a composition. The landscape is a movable mass; it is sculptural. The landscape is a surface plane; it is geometric. The landscape is defined by natural and man-made elements; it is a space. The landscape is an efficient plan; it is functional. The landscape is made fit for human use and enjoyment; it is designed. The landscape has human influence; it is an

environment. The landscape has moral, political, and even religious values; it is a literary metaphor. The landscape has basic human meaning; it is philosophical. The landscape conveys a special meaning to a large number of people who share the culture; it is an image. The term landscape as it is used in this study is all of the above; it is historical.

2. Central campus

For the purpose of this study the physical limits of the Iowa State University central campus will be the area bounded on the north by the Northwestern Railroad tracks, on the west by Sheldon Avenue, on the south by Lincoln Way, and on the east by the Squaw Creek flood plain. However, since the approach to this study is primarily visual the inscribing boundary lines are to be understood as representative lines drawn at a place where the visual limits begin to fade out. With this interpretation the study will exceed the physical limits of the central campus to include the immediate surrounding community as it becomes relevant to the significance of the central campus landscape.

3. Periods

The landscape development of Iowa State University has been a continual process. Investigation, however, has suggested a rhythmic development process, exhibiting with a greater or lesser amount of conscious thought, changing conditions and ideas. The method which is used to distinguish the change is

to generalize the landscape in terms of broad design concepts. I have found in the landscape development of Iowa State University six distinct design concepts and, respectively, six historical periods of landscape development.

At no time has any one person been totally responsible or effective in directing every detail in the development of the University landscape. Sometimes decisions which have affected the landscape were made by persons lacking either conviction or understanding of the landscape; other times decisions which have affected the landscape were the result of political activity or economic inactivity. However, Iowa State University is fortunate in having a history of almost continuous service by persons who were concerned about the excellence of the landscape, and by persons who were able to give human meaning to a landscape by developing an interpretation of excellence in terms of a designed landscape.

Land and planting designs are important records of the development of Iowa State University and its culture. There remains in many sections of the University the work of major landscape architects and landscape gardeners.—Surviving features of otherwise discarded over-all plans, designs for major parks, malls, and boulevard systems are examples of this sort of heritage. Some of the men who created these designs are A. J. Downing as interpreted by Dr. A. S. Welch, John Charles Olmsted, and O. C. Simonds. They rank among the more important creative people of their generation; their works are

particularly susceptible to eradication. Great care will be needed to prevent the disappearance of their contributions from the University's landscape.

The concept for the landscape design of the first development period was based upon a desire for human scale and harmonious relationships on an infinite prairie surface. The designers for this development period were Professor H. H. McAfee of Horticulture and Dr. A. S. Welch, the first president of Iowa Agriculture College. Professor McAfee was a minor designer and was important principally for his effort in developing extensive nurseries on the College grounds. The principal designer for this period was President A. S. Welch.

President Welch increased the perceptual interest of the Iowa prairie by composing natural landscape elements on the College grounds so as to form a series of pastoral pictures. He also edited a very high-quality rural newspaper. In essence, this paper was an encyclopedia of "country life"; it was published monthly in Cedar Rapids and had a state-wide distribution. By manifesting his landscape theories in this paper, he became a crusader in the State of Iowa for an ideal pastoral landscape of harmonious relationships and pictorial interest.

The importance of President Welch as a landscape designer was established through both his philosophical conviction and his creative ability. He regarded the landscape as a unique design medium. Importantly, he also regarded the

landscape as an environment and, therefore, basic in its human influence and meaning.

Most of the documentation for this period came from original and published addresses, articles, and lectures by Dr. A. S. Welch and H. H. McAfee. Other documentation came from a wealth of publications contemporary to President Welch which dealt with "country life." However, by far the most important outside documentation came from two volumes by the first prominent Landscape Gardener* in the United States, Mr. A. J. Downing, A Treatise on the Theory and Practice of Landscape Gardening published in 1859 and Rural Essays published in 1869. President Welch did not document any of his letters; however, he did employ enough spirit and terminology so that I was able to conclude that in actuality much of President Welch's visual philosophy and manner of expression were a positive reflection of the works by A. J. Downing.

President A. S. Welch began to work seriously on the grounds of the Iowa Agriculture College in the spring of 1869. By the mid 1870's he had created an extensive natural park. This park exists today as a mature expression of a pictorial composition. As it exists today, it is a focus of the Iowa State University central campus. In the existing college landscape, this park is a basic physical structure and an image of

*In 1899 the profession adopted the name landscape architect.

landscape.

The amount of time that President Welch could spend on the development of the College landscape diminished towards the 1880's; nevertheless, he continued to be effective in a majority of the design decisions until 1884. During the academic year 1883-1884, Dr. A. S. Welch was removed from the College presidency and, although he did remain on the teaching staff until his death in 1889, it is doubtful that he played any part in the expansion program of the 1890's which was in the planning stages prior to his death.

The concept for the landscape design of the second development period, when applied, was based upon a desire for convenience and foreground variety. The representative designer for this period was the President of Iowa State College of Agriculture and Mechanic Arts from 1891 to 1902, Dr. W. M. Beardshear. (2)

President Beardshear established a national reputation for the College and its work. He also established strong financial support with the state legislature through his earnest and powerful personality.

The importance of Dr. W. M. Beardshear as a landscape designer was his contrasting philosophical convictions. On one hand he had an adamant regard for a rural state of being as an ideal, while on the other hand he regarded a new era of the great industrial empire as an ideal. His contrasting philosophies set the stage for a landscape paradox which was to follow

him.

The documentation for this period came from the recorded minutes of the Building and Grounds Committee and from a publication of Dr. W. M. Beardshear's writings entitled A Boy Again and Other Prose Poems. Other documentation came from publications contemporary to the period and included writings of the noted English Landscape Gardener, J. C. Loudon.

Between 1883 and 1906 the College experienced a rapid expansion of its physical plant facilities and student enrollment*. This early landscape development came at a time when there were many who professed the rural environment as an ideal and still many more who professed the delights of a park-like college. There were, however, few who professed any design theories to guide decisions which affect the landscape. As a result many of the landscape changes which came about during this development period were changes of expediency rather than of design. During the first part of this period the College administration was under-going sporadic change and alteration. In fact, there were times when the College presidency changed hands several times during a single year.

By the time that Dr. W. M. Beardshear became president, many of the landscape changes of his period had already come about. He is important, nonetheless, because it was his

*The student enrollment in 1883 was 282, and the enrollment in 1906 was 1,616.

planning which was to initiate a new era of classicism in the College's landscape development. After eleven years of dedicated service he died at the height of his career.

The concept for the landscape design of the third development period was based upon a desire for a geometric expression of classical dignity and noble character. The principal designers for this period were Landscape Architects Mr. John Charles Olmsted and Professor A. T. Erwin. At the suggestion of Professor Erwin, the College invited the noted Landscape Architect from Brookline, Massachusetts, Mr. J. C. Olmsted, to visit the College and to prepare a report discussing its probable future requirements. After visiting the College in the spring of 1906 and conferring with the administration and members of the faculty and board of trustees, Mr. Olmsted submitted his report on June 2, 1906. The original report was a twelve-page document which briefly interpreted the historical landscape as a design concept. The report went on to establish the terms by which a contemporary landscape concept should relate to the historical landscape development. The College did not negotiate with Mr. Olmsted for any additional services.

During the years which followed the 1906 development report there occurred a major expansion of the College's physical plant facilities. The resulting landscape change was directed by the decisions of the Building and Grounds Committee and, particularly, by Professor A. T. Erwin who was a member of that Committee. Several of the immediate landscape changes

were based upon a direct application of specific recommendations established in Mr. Olmsted's development report. However, later landscape changes and proposals for future development were the result of interpretation and modification of Mr. Olmsted's general design concept.

Professor Erwin and the Building and Grounds Committee directed the placement of classical buildings on a symmetrical axis so as to force reciprocal views of a building of "stately proportions, artistic design, and enduring strength." (1, p. xxi) They also developed plans and studies for architectural entrances and for an efficient flow of motor traffic.

The importance of Professor Erwin and the Building and Grounds Committee as landscape designers was primarily their enthusiasm for a designed landscape. They regarded the landscape as a design medium capable of expressing an appearance of worthy character and orderly relationships.

The documentation for this period came from John Charles Olmsted's 1906 development report, from recorded minutes of the Building and Grounds Committee, and from plans, letters, and articles by Professor A. T. Erwin. Other documentation came from F. L. Olmsted's book entitled Forty Years of Landscape Architecture and from the writings of the noted Architect Daniel Burnham entitled Plan of Chicago.

The Building and Grounds Committee has actively participated in decisions which affected the landscape throughout the history of the College. Nevertheless, it was during the third

development period, 1906 to 1916, that this Committee became of major importance in its influence on important landscape decisions. This Committee and, particularly one of its members, Professor A. T. Erwin, believed in the orderliness proposed for the College in Mr. Olmsted's report. It was their encouragement which initiated the concept for a functional as well as a geometric relationship between college buildings.

The concept for the landscape design of the fourth development period was based upon a desire for a sequential expression of middle and foreground forms. The designers for this development period were Dr. L. H. Pammel of Botany and 4 Landscape Gardener O. C. Simonds of Chicago. Dr. Pammel was a minor designer and was important principally for his effort to establish within the College environment natural botanical preserves. The principal designer for this period was Mr. O. C. Simonds.

In 1914 or early 1915, Mr. LaVerne W. Noyes of the class of 1872 made an offer to the College to donate a substantial sum of money for the purpose of employing a landscape gardener* from Chicago, Mr. O. C. Simonds. Mr. Simonds was to furnish landscape plans for the College grounds and for a proposed lake.

*Although the profession had adopted the name landscape architect, Mr. Simonds preferred to be called landscape gardener. He felt that landscape gardener was a more fitting term for a profession which he regarded as a fine art as opposed to an engineering science.

The College followed up on Mr. Noyes offer and engaged Mr. Simonds for his professional design services. During the years 1915 and 1916, he spent considerable time on the Iowa State College grounds developing his conception for an improved landscape. The method which he used to put his landscape design into effect was to personally direct the landscape construction rather than to furnish detailed construction drawings.

Mr. Simonds initiated the use of plant materials to create a landscape transition of soft edges. He also molded natural landscape elements to create a sense of anticipation and movement.

The importance of O. C. Simonds as a landscape designer was established in the same manner as President Welch through both his philosophical conviction and his creative ability. He was a crusader for naturalistic ideals. He regarded the "special role of the landscape gardener or landscape designer as a protector of the appearance of the great out-of-doors."
(57-cover)

The documentation for this period came from Mr. O. C. Simond's letters, published articles, and from his published book entitled Landscape Gardening. Other documentation came from published articles and lectures by Dr. L. H. Pammel.

The majority of Mr. Simond's work on the Iowa State College landscape was done in the vicinity of what is now Lake LaVerne. Although he gave consulting advice on the allignment of some of the roads adjacent to the lake area, his principal

service was the supervision of the lake construction and the direction of the mass plantings of shrubs and small trees adjacent to the lake.

Much of Mr. O. C. Simond's landscape design was relatively short lived. By the mid 1930's the lake had been remodeled and the mass plantings had been removed. What remains of his landscape design today is located in the foundation plantings adorning the major classical buildings. As these foundation plantings exist today they are overgrown and unrelated. At best they express a shoddy picturesque quality.

Mr. Simond's original landscape design was much broader in its expression. It was a pedestrian experience of sculptural forms and sequential spaces created by an integrated massing of eye-level plants with buildings, earth, and water outlines.

The concept for the landscape design of the fifth development period was based upon a desire for landscape units of obvious precision reflective of urban sophistication and culture. The designers for this development period were Professor P. H. Elwood, Professor R. R. Rothacker, and Professor A. H. Kimball. This period began a new era in which landscape changes were guided by permanent design or planning consultants. The professional design consultants were engaged on a part-time basis and came from the teaching staff of the departments of architecture and landscape architecture.

The design consultants and, particularly, Landscape

Architect P. H. Elwood, developed plans for an inter-connecting system of symmetrical and asymmetrical landscape spaces or outdoor rooms. They also developed plans and studies for a hierarchy system of roads and related parking areas.

In general, the importance of the part-time design consultants as landscape designers was their creative and productive ability. They regarded the landscape as a unifying design medium capable of relating indoor and outdoor experiences.

The documentation for this period came from reports and plans prepared by the part-time design consultants and from articles and lectures prepared by individual design consultants. Other documentation came from writings contemporary to the period.

The landscape designers for this period began to function as a part-time collaborative design team during the early 1920's. However, it wasn't until the Depression and war years that the design consultants were able to contribute more than experienced opinion. With the event of depression and war, the design consultants had a reduced teaching obligation. They were able, therefore, to devote an increased proportion of their time toward developing landscape designs and plans. Importantly, they not only had increased time to spend on landscape designs but they also had an increased budget. The result of the increased planning and designing effort included coordination and analyzation of data for a College Master Plan and Report and design, construction, and maintenance of major

landscape changes.

The landscape changes constructed during this period were bold design statements. They were also design statements which could be easily comprehended and, respectively, readily preserved. They exist today as well-defined outdoor rooms or spaces. However, as they exist they are only vaguely related to the total central campus landscape. In the original landscape plan, the existing rather small landscape spaces were to be units within a much larger and grander landscape space. The total of the central campus landscape spaces was to be unified through a geometric relationship.

The concept for the landscape design of the sixth development period is based upon a desire to perpetuate a pastoral landscape in an increasingly complex university scheme. The designers for this period are full-time architects and landscape architects. They are staff personnel in the offices of the Supervising Architect and Superintendent of Grounds. Although each of the respective design offices is primarily concerned with keeping abreast of immediate landscape changes, the offices function independently in their design operation. The Supervising Architect's office is staffed with architects and the scope of its work is principally program coordination and preliminary designing for new buildings. The Superintendent of Grounds office is staffed with both architects and landscape architects; however, in this office the landscape architect is more directly concerned with landscape changes. The scope of

the landscape architects work is principally design of plantings adjacent to buildings and supervision of plant material maintenance.

Working at the scale of the individual project, the design personnel have coordinated architectural concepts and designed planting plans; at the scale of the total central campus, they have initiated a limited procedure for achieving landscape unity. This procedure calls for a systemized arrangement of architectural forms and colors, such as all buildings facing the central campus park shall be symmetrical in form and gray in color. In addition, the procedure calls for a structured division between geometric units, such as all streets constructed on a ninety-degree grid shall be uniformly lined with trees.

In general, the importance of the design personnel as landscape designers has been their creative ability on an individual project basis. They have regarded the landscape as a surface design medium structured by a succession of natural or freely geometric gardens.

The documentation for this period came from personal interviews with the design personnel and from reports and plans prepared by the designers. Other documentation came from contemporary publications.

The 1950's initiated a rapid increase in the University's landscape changes. To guide these changes the University created line positions for professional design personnel.

professional designers have employed particularly bold design techniques in the realm of materials selection both architectural and vegetative. They have created stark punctuations in a predominantly soft and flowing landscape.

4. Maps and graphics

To illustrate the landscape development, I have drawn maps, diagrams and perspective views for each of the respective historical periods.

The maps illustrate in plan view the contours, roads, parking lots, paths, sidewalks, athletic fields, buildings, and deciduous or evergreen trees. The interval between contours is five feet; the original scale was one inch equals one hundred feet.

A survey of the central campus completed in 1903 by the Department of Civil Engineering represents the earliest complete map of the college drawn with a degree of accuracy. Earlier sketch maps were prepared respectively in 1868, 1884, and 1891. These early sketch maps indicate topography, paths, roads, buildings, and plant materials. However, the location and extent of the landscape elements were roughly drawn and represent only an approximation of the actual landscape. These maps were used as a general reference source rather than an actual data source.

The map of the first period illustrates the landscape development up to the year 1884. The sources for this map were

principally the 1903 survey, which was used as a base map, and early perspective photographs which were used to correct the base map to an 1884 landscape situation. The method of using perspective photographs to check and complete the accuracy of the base maps was employed in each of the respective development periods; however, it was used principally to correct the extent and location of major plant materials. While this method represents an approximation, the overall effect of the corrected landscape map is several degrees more accurate.

Each of the succeeding landscape maps was prepared in the same manner as the first map with the exception of the base maps which came from professional surveys contemporary to the development period.

The perspective views were adapted from historical photographs and were chosen to illustrate a particular historical design concept.

The diagrams and other graphic techniques have been prepared to give visual support to the narrative text.

5. Ideal landscape

The founding of a new university or the planning for the new growth of an already established university affords a challenging opportunity to evaluate the relationship between the physical environment and the educational philosophy of the university. The most critical decision that a university can make is the choice of what to study. Once it has chosen to

pursue a particular field of study it must appoint a staff, build up a library, possibly erect a building and install equipment; all of this will probably commit the study permanently. These are the events that are basic to the university. One involves the philosophy, the purpose, and the reason; the other involves the physical environment, the real events that both sustain and exalt.

The university is by its very nature and culture representative of an ideal and an image of a noble aspect of life. Historically, Iowa State University is unique in that it has at times communicated in broad visual terms an idealized image of life in the State of Iowa. This traditional ideal has been a concept of a rural state of being and an image of a pastoral university landscape. But what about the future? What will be the image of the maturing University? Will it continue to express a pastoral form of quiet rhythms and loose texture? Will it adopt an urban form of high density and extensive complexity? What about the position of the university as a world apart and as an oasis identity separate from the surrounding community town? Is it of greater value to permit the student a campus retreat, or is it more important to mix the student with the variety and liveliness of town life?

These are some of the decisions which must be faced today by Iowa State University and by the designers who seek solutions to the University's development problems. The synthesis of these problems involves the fundamental question of

whether or not the University will constantly redefine itself in the broad terms necessary to communicate a fulfillment of purpose in an ever-changing set of circumstances.

The purpose of Iowa State University originated in history and has expressed an intention that the University should provide an experience of living as well as an opportunity for learning. Provided that the University is given the necessary funds, there can be little doubt that it will continue to fulfill this basic purpose by providing an academic and social community of high standards to meet the needs of the State. But if the ends are obvious, then it must be the means which must be re-evaluated in an ever-changing set of circumstances. What must be re-evaluated is not the purpose of the University, but rather the method or design by which the purpose has been or may be communicated.

The products of engineering, architecture, and nature have been and will continue to be combined to make up the Iowa State University landscape. In combination they are a large part of what we experience in the University; they prepare the place for the sequence of our activities. Within this combination we do our work, research, or studies and strive towards our ideals or just live out our habits.

Ideally, a university landscape, in its interaction with its inhabitants, would act as an indivisible whole within which no one element could be changed without having an effect throughout the entire landscape. Thus an ideal landscape

consists

...not just of buildings and streets, but a whole complex of structures, natural forms, climate, texture, and detail, above, below and at the ground surface. (39, p. 6)

It consists of a purpose which generates a change within the context of a particular set of circumstances--a change which must be continually redefined in an ever-changing set of circumstances.

II. THE PERIODS OF LANDSCAPE DEVELOPMENT

A. Pictorial Landscape from 1869 to 1884

1. Designers

Dr. A. S. Welch was a graduate of the University of Michigan, principal of the State Normal School in Ypsilanti, Michigan, United States Senator from Florida, and President of Iowa Agriculture College.

Professor H. H. McAfee, of the Department of Horticulture at Iowa Agriculture College, came to the college from Freeport, Illinois. He was a vice-president of the Iowa Horticulture Society and had previously been an active member of the Illinois Horticulture Society.

2. Concept

For President Welch the meaning in a landscape was centered in an esthetic theory and, particularly, in an esthetic theory about the essence or spontaneous quality of nature. The extent of his esthetic theory was large and all consuming. It was the total of the physical college, or as he would like to have perceived it, the total of a rural country-side. He conceived the landscape as an environmental composition in which a harmonious relationship between man and the natural world had been established.

At the level of the college community, President Welch manifested his esthetic conviction through college instruction and through actual landscape construction. The effect of this

manifestation was the creation of an extensive natural landscape on the College grounds, and the creation of a College curriculum offering one of the first college courses in landscape gardening in the United States.

At the level of the state community, President Welch manifested the same esthetic conviction through addresses and editorials directed to rural Iowa homes. The effect, however, of President Welch at this level seems very dubious. Indeed, esthetic conviction at the public level traditionally has resulted in an eternal conflict between beauty and economic utility.

The initial event in President Welch's esthetic theory was the rural home and the Iowa prairie. Significantly, he understood the home to be the totality of life's expression. He states of the home:

It is the moral which makes or mars the full stature of a spiritual man; that it is the intellect that crowns or cramps the power of thought; that it is the social where our first small words and our last sighs are heard; and that it is the material structure and environs on which the eye falls and the hand touches. (27, 1875, p. 165)

The intellectual concept of this home totality could be extended to volumes. President Welch, however, chose to intensify his attention on the field of vision narrowed to the material features of the home and, particularly, on a single vital element in the field of vision, that of beauty.

It is the useful in this world that sustains us; it is the beautiful that exalts us. The useful supplies our inevitable necessities and multiplies our comforts.

The beautiful rounds out our character into the fullness of form and gives to our moral and intellectual strength the refining and finishing touches. It is the full rounded intellect that regards beauty and utility as the complements of each other and equally indispensable to a large, true life...our capacity to perceive, to pursue, and to gather beauty within ourselves, is limited only by the measure of our esthetic sympathy and the reach of our intellectual vision. (27, 1876, p. 172)

Each object we see is immediately passed upon as standing somewhere in grade between the extremes of beauty and ugliness, and the gauge by which it is placed in the scale is determined, in some prior conception of perfection in that object. An object never before seen, new in all its elements, cannot be either beautiful or ugly to us, it is only a novelty, and excites more or less of curiosity or wonder, unless it may in some degree resemble some other object upon which we may have passed judgement with regard to appearance, but so soon as the mind decides the question whether it be perfect, or in any degree less than perfect, we can try it as to its beauty. (27, 1874, p. 70)

No extended observation is required to reveal that beauty is an essential element in the human soul. Indeed it is far from extravagant to say that our very civilization depends on the constant presence and controlling power of moral and material beauty. For if man finds his habitation in any of those desolate regimes where bleakness and sterility reign supreme--where no flowers, fruits, or foliage relieve the monotony of the desert, he becomes a ferocious savage or wild and wandering Arab. (27, 1876, p. 173)

In truth you will search to find, on the round earth, human beings, high or low, barbarous or cultivated, that do not, in a condition of sanity, shrink from deformity and cleave to beauty. (27, 1875, p. 165)

It is, therefore, one of the soundest arguments in favor of education, that proper mental training furnishes incidentally a great increase of the purest human happiness in a better conception of perfection and beauty. (27, 1874, p. 71)

The argument that Dr. Welch is dramatizing here is, of course, that we do not live by bread alone. In his letters he would quite often go to great lengths to establish the logic

for a matrix life of both objective and subjective reality. However, the important argument for this study is not the logic of beauty but rather the conception of beauty--a conception which held harmony of rural landscape forms as an ideal. The beautiful landscape captured the essence of nature; it was the combination of basic natural forms which were perpetual in their deviation and which existed in combinations which were always new.

It is important to note here that the beautiful landscape was not a purely ecological landscape, but rather it was an improved landscape in which natural "elements of comparison, of contrast, and of complementary form, color and position were used to supply natural deficiencies, while ugly, inharmounious or superfluous objects were to be removed or marked." (27, 1874, p. 69)

✕ President Welch's landscape composition had a two dimensional, pictorial quality; it was designed primarily to be viewed from certain designated locations and, particularly, to be viewed from the rural dwelling. This leads back to his "home totality" theory and to a basic understanding of his conception of beauty. For President Welch, beauty was the absolute perfection of a desire for a harmonious relationship between man's physical environment and the natural physical environment and a harmonious farm was beauty; it was the realization of an admired ideal.

The farmer finds in his life-work the unfailing resources

of refined enjoyment. By the aid of the head and the hand he is constantly creating the forms of natural beauty which gladden his eye and cheer his heart, and this it is that renders farm life, under its higher aspects, one of the truest lives that man can live. (27, 1876, p. 175)

It was fitting that President Welch brought to Iowa Agriculture College a sincere desire for an ideal farm landscape. Only a few years before his inauguration as president a joint governor's committee had submitted the following report regarding the condition of the grounds for the proposed model agricultural college and farm:

X ...The Story County site had six different varieties of soil representing the prevailing kinds in the state; it has more than fifty varieties of timber, shrubs and grasses; it has running water, and spring and well water are in abundance; it has plenty of gravel, stone, and sand for brick; it has high dry land, rolling clay, till bottom, sloughs, flat wet bottom, and timber bottom, besides genuine prairie land. We know of no other available farm land in the State combining so many lead-characteristics of Iowa soil, and we are satisfied that the main object had in view by the framers of the organic law was that the model agriculture college should have so many leading characteristics of the lands of our State as possible. (2, p. 240)

The quality of a prairie landscape which makes it so barren and monotonous is exactly the quality which can make it so exciting for a landscape designer. The prairie is considered by the landscape designer in the same manner that an empty canvas is considered by the painter or a block of stone by a sculpture. It awaits an intellectual perception which has the power to compose it into endless varieties which "relieve the eye and quicken the fancy." (61, p. 67)

Although the college forefathers may have chosen the

Ames site for its variety of land conditions, it would be folly to infer that they desired the variety of land conditions for esthetic effect. More than likely, they chose the Ames site for the variety of agricultural experiments made possible by the respective land conditions. It remained for President Welch then to turn dull and uninspiring experimental land into a beautiful college campus and experimental farm. It was the variety of existing land conditions which provided many of the esthetic subtleties necessary for President Welch's landscape design. In fact, it was the subtle varieties of prairie land condition which were the basis of his esthetic theory.

He did not attempt to disguise or cover up the fact that Iowa was a prairie. Rather he tried to express the prairie character in a manner which would have human meaning and relevance. How much happier is the prospect of a distant horizon where sunrise or sunset are framed by the "nearer view of woodland, stream, lakelet, bluff, hill, or valley." (61, p. 67)

The prairie served as both his teacher and his medium of expression.

Iowa as found in a state of nature was all a grand landscape. The airy undulations of surface, the irregular outlines of the island groves, and the irregular meandering of the streams, with their timber fringing, presents a mingling of the graceful, perfect and beautiful, well calculated to give lessons in the art of natural gardening. (27, 1874, p. 80)

There is evidence in President Welch's writings that he had been developing his poetic landscape concepts for many years. By the time he had become president of Iowa Agriculture

College he had probably been to Europe several times. As a result he was familiar in detail with many of Europe's most treasured landscape gardens. He also had a scholarly knowledge of most of the published landscape writings and theories of both Europe and the United States.

Although President Welch had visited European gardens designed in the Renaissance grand style, he was adamant in his rejection of these formal or geometric landscapes. He describes them as old landscape theories which were

...stiff, formal and angular. From beginning to end they are at war with nature. They located the dwelling in the center of an unvarying plain; they cut a straight avenue from the public road to the front entrance and bordered it with formal rows of trees. All roads and walks divided the grounds with geometric exactness into triangles, or squares or parallelograms. (61, p. 67)

When it came to the non-geometric, anti-architectural landscapes he expressed an even greater vigor, however, this time with an about face. He expounded eloquent praise for the naturalized landscape which had been inherited from eighteenth-century English gentlemen. The English naturalized landscape which President Welch so fully admired was a timeless park in which one might experience some of the universal truths of nature. It was poetry in the form of a landscape scene and composed with a "painters eye for asymmetrical balance in depth, unity of character, harmony of color, and effects of light and shade." (34, p. 10)

The natural landscape tradition was popularized in the United States by Andrew Jackson Downing in the 1840's. In 1858

Frederick Law Olmsted and Calvert Vaux employed the natural landscape tradition in the design of New York City's Central Park; it has since been employed in the design of large metropolitan parks all over the world.

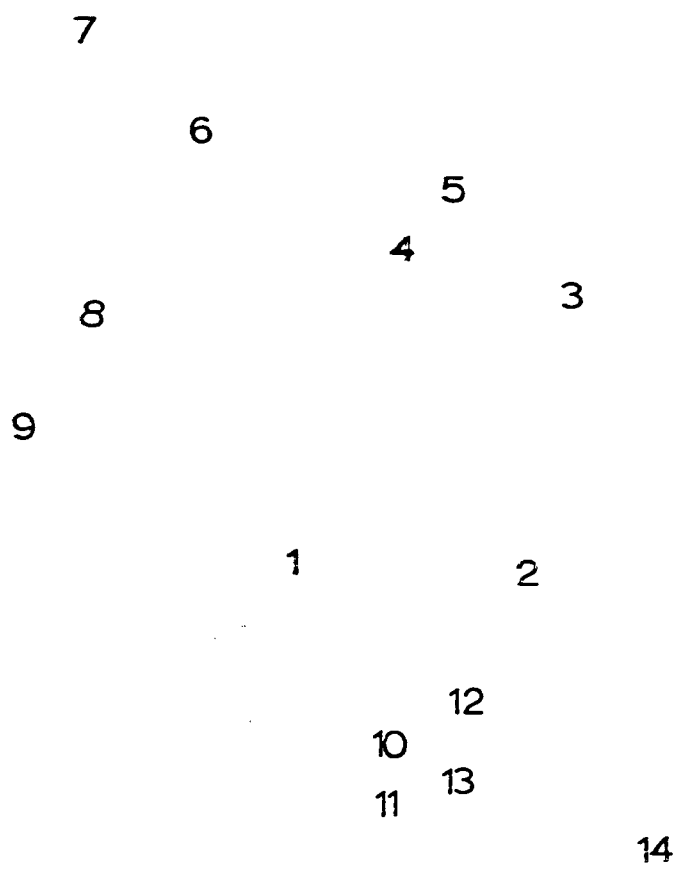
Inherent in the nature of the naturalized landscape is a unique quality which makes it a living tradition rather than a style. It provided a flexible basis for landscape design. Although President Welch inherited his respect for natural beauty from the English, his own genius lay in his original interpretation of nature's sense of place. He employed a natural attitude toward design; his design technique sought to express the individual character of an Iowa prairie site. His poetic concept of the prairie landscape is particularly well stated in the following excerpt from his essay on Home Making.

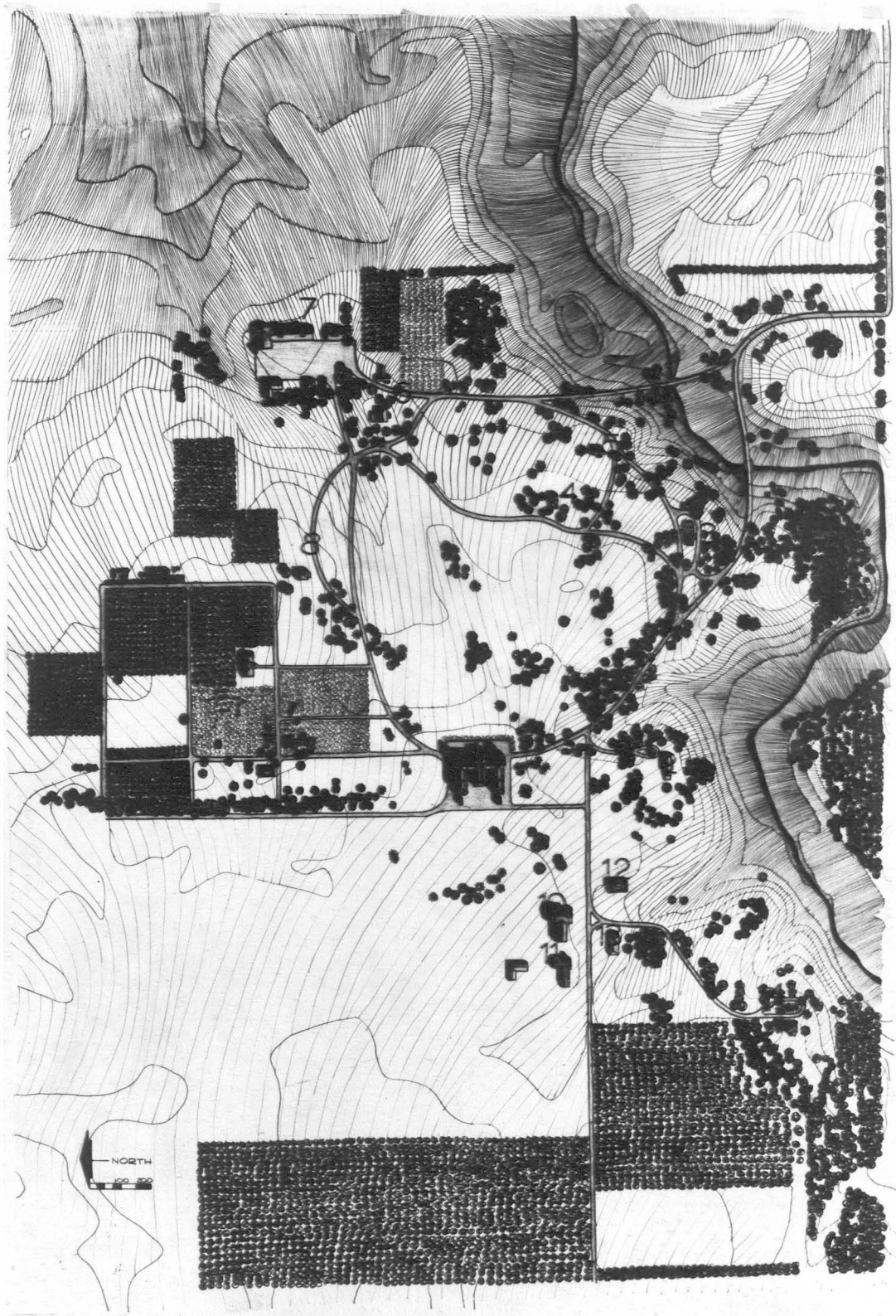
Nature loves curving lines, bounds her most beautiful productions with curves and abhors a straight line as she abhors a vacuum. She erects the tree with infinite varieties of shape, rounds its trunks and limbs with circles, molds its fruit into spheres, and cuts its leaves into forms that fascinate the eye. She rounds every drop--fits the rainbow to the band of the sky, and her winds forbid the very seas to rest with the placidity of a level surface--their restless undulations attest her love of curves, and her prairies are, so to speak, the long swells of the sea solidified. In innumerable creations through untold ages; has nature expressed her aversion to the exactness of geometrical forms and angles. Nature once heaved the continents above the superincumbent ocean and run their boundries where land and water met in ever varying lines. Then she lit her subterranean fires and bent the level surface into all the countless diversities of hill and dale, mountain and valley. She sent innumerable springs bubbling up through crevices and fissures of the rock, gathered their rills into brooks, the brooks into creeks, the creeks into rivers; which following the winding sweep of great valleys, carried their accumulated burthen of waters to the ocean. She loaded her ponderous

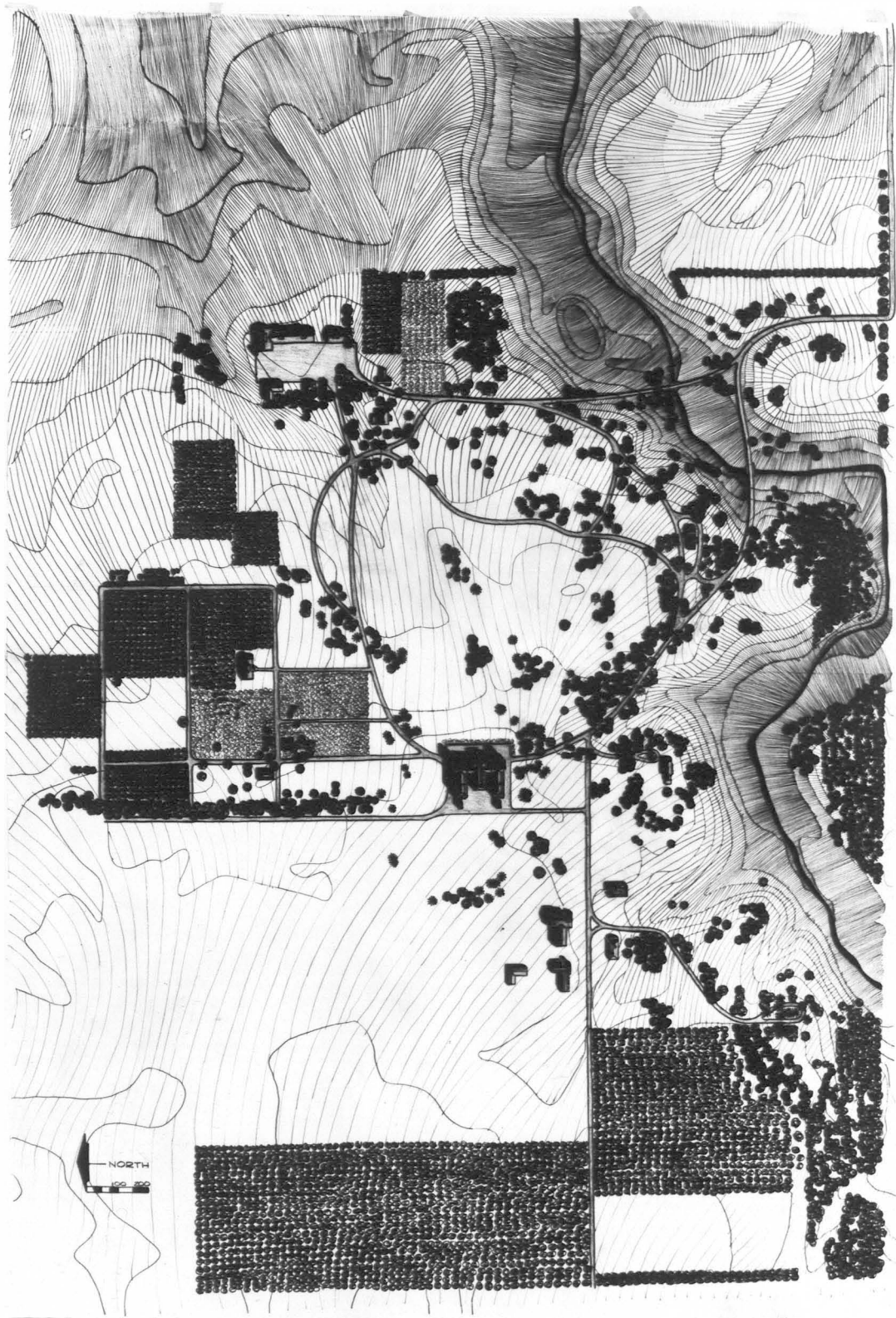
Figure 1. Iowa Agriculture College from 1869 to 1884

1. Main College Building
2. Professor's home
3. South Hall
4. Professor's home
5. Professor's home
6. Farm House
7. Barn
8. Professor's home
9. North Hall
10. Chemical and Physical Hall
11. Engineering Hall
12. East Boarding Cottage
13. West Boarding Cottage
14. Professor's home

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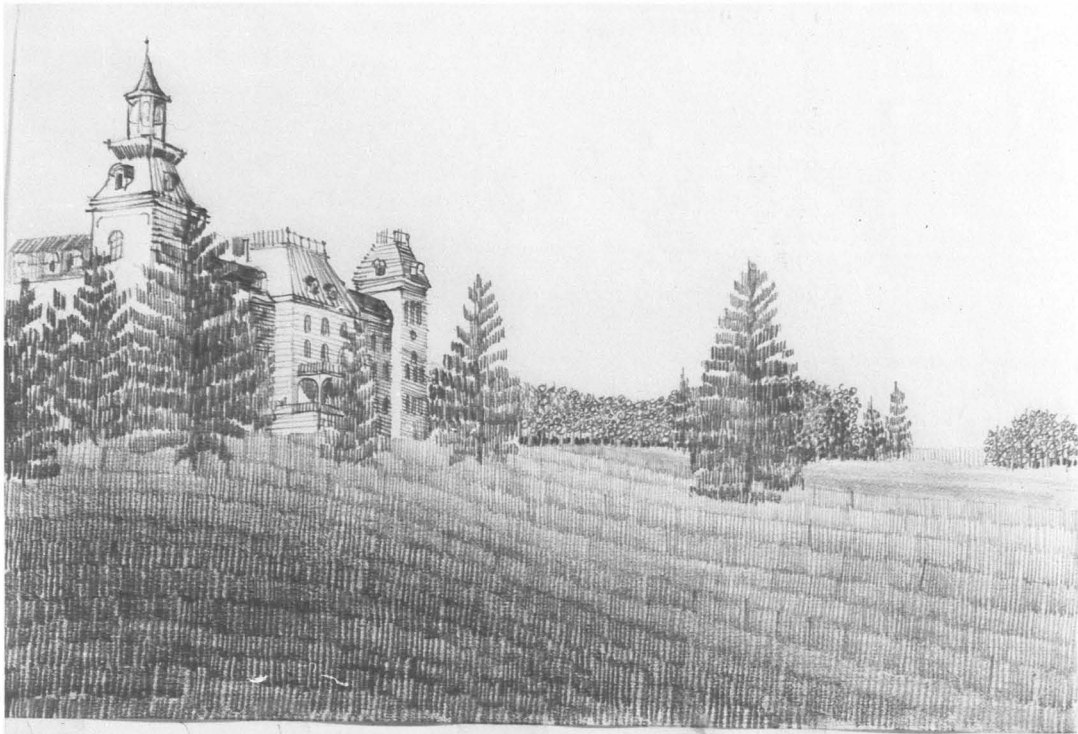




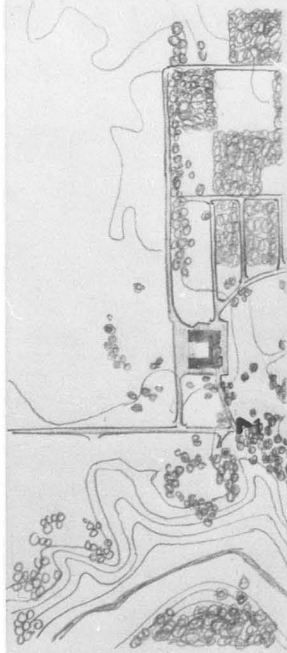


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Figure 2. Sketch Views of College from 1862 to 1884



A DESIGNED VIEW OF THE MAIN
BUILDING FROM THE APPROACH ROAD.



VIEW LOOKING WEST ON THE
COLLEGE CREEK ILLUSTRATES
OVER-LAPPING OF LARGE SCALE
FORMS. FIGURE NO. 2

ice-boats with fragments cleaved from vast precipices, bore them on the surging waters of gigantic freshets, and dropped them upon the submerged earth in every diversity of pattern and posture. With sun and rain, she pulverized the solid rock and turned it into soil, she breathed upon the dead mould with vivifying breath and a thousand forms of vegetable life, of trees and flowers and climbing vines, sprang up to beautify the surface responsive to her call. Thus sunshine and rain, hill and valley and mountain, sky and cloud, trees, shrubs, grass and flowers, are the materials out of which nature creates the landscape; and what we have to do in beautifying our grounds, is to study her methods and scrutinize them well. (61, p. 67)

3. Design

In the spring of 1869 President Welch with the aid of some fifty college boys set to "transform, by suitable improvements, fifty or sixty acres of crude prairie surface into wooded lawns and so to surround the college building with a beautiful and natural landscape." (28, p. 184) There was a variety of existing timber in the College's bottom land adjacent to Squaw Creek and on the bluffs of what is now Pammel Woods. However, the land surrounding what was later to become the central college campus was

...everywhere covered with wild grasses, unrelieved except by the burdocks and other similiar weeds. No tree broke the monotonous scenery save a few stnted soft maples which, with two or three silver poplars to impart variety, were planted in straight rows near the farm house. (28, p. 184)

In 1869 the College physical plant consisted of a Farm House and a Main Building. The Farm House exists today in its original location, and in 1964 it was designated as a national monument. The Main Building occupied the approximate site of

the present day Beardshear Hall. In 1902 this Main Building was destroyed by fire.

Before the actual landscape construction was initiated, President Welch "carefully devised a plan." (28, p. 187) This plan was "sketched on paper and located each tree as well as the roads, walks, and buildings." (28, p. 187) Soon after the plan was completed, work was begun on laying out and constructing "two roads running from the Main Building; one to the Farm House on the left and the other to the highway on the right." (28, p. 186) These roads met the pressing necessity for a regular means of passage for vehicles from the Main Building to the Farm House and from both of these points to the neighboring highway. Their construction involved unique innovations; however, the esthetic theory which directed their course of traverse is of importance to this study.

The approach road leading from the highway to the Main Building was regarded as the most important of the two routes. It was designed with proportionate breadth, size, and details so as to be in harmony with the dignity of the Main Building. The point where the approach road was to start from the highway was chosen so as to offer a pleasant drive through the grounds before arriving at the Main Building. The idea was that the approach drive should generate interest in the property by revealing, through sequential glimpses, the extent of the entire property. The same sequential idea was desired to dramatize the end object, the Main Building. In general, the

Main Building was approached from an angular direction so that a complete notion of the building's size and character could be formed. It was particularly desired that the Main Building should not be seen during the approach from so great a distance as to make it appear much less than it really was. Specifically, the first view of the Main Building was to be from the "most pleasant point of sight." (27, p. 77)

In order to meet the esthetic desire for sequence and variety of exposure, the approach road was intermittently curved with "easy lines." There were two basic principles which were adhered to in designing these curves. The first, that the curves should never be so great, or lead over surfaces so unequal, as to make it disagreeable to drive upon them; the second, that the road should "never curve without some reason, either real or apparent." (28, p. 186) Some of the reasons which were accepted for curvature of the Iowa College approach road were

...where the surface was level, an imaginary group of trees, to be planted thereafter, whose fancied presence compelled a gentle deviation of the road line, in order to avoid encountering it. The other consisted in diversity of surface lines presented in portions of the College grounds, when by the rules of art the drive may make a more or less decided bend around the base of a hill which it should not climb. (28, p. 186)

Simultaneous with the road construction, work was proceeding on the preparation of the grounds for immediate planting. Despite only one plowing of the crude prairie soil, a variety of small trees were set out so as to take advantage of

the first year's growth. The procedure of plowing the soil and planting trees became a series of operations which were continued until the "soil was reduced to the requisite condition and tilth for the sowing of blue grass and the making of a lawn, and until the trees were set about the entire grounds in artistically arranged groups." (28, p. 186)

The plant materials which were set about the grounds during the early years of the College's landscape development came from local resources. Particularly, a nursery adjoining the farm house supplied "several thousand soft maples, two years old, several hundred Norway spruce, two and three feet high, and a limited amount of other young evergreen stock." (28, p. 185) The local nursery stock was abundant in number and very limited in variety. To make up for the lack of variety in nursery products, the Squaw Creek bottom land was sought for its unlimited supply of natural saplings. President Welch described this bottom land as follows:

Extending three quarters of a circle around the College, half a mile distant, runs a belt of native woods which presents, to this day, the finest feature of the distant landscape. There are found, here and there, growing in narrow glades or on borders exposed to the sun, multitudes of trees which, in age and size, were suitable for the purpose at hand. These young offerings of the native timber, which were unstinted both in variety and number, included the Oaks, the Hickories, the Ashes, Elms, Maples, Walnuts, Poplars, Birches, Willows, Lindens, Dogwood, Thorns, Locust--each of which showed, by comparison with the lofty forms of the same variety that towered above it, what it would become when transplanted and grown under favoring conditions. (28, p. 185)

During the initial half-dozen years of landscape develop-

ment, thousands of trees from the nursery and the neighboring woods were transplanted to available spots on the plowed ground. These trees provided a form for the newly-developed Iowa Agriculture College. Their arrangement was according to esthetic theories developed by President Welch. Always the idea was to produce a harmonious environment and at the same time to communicate a new life and spirit through variety and intricacy.

The leading element in his irregular arrangement of trees was the "group." The group was made up of closely-planted trees which might comprise a strand of three, a forest of several thousand, or any number in between. In general groups were composed into successions becoming first a mass, then a woods, and finally, a forest. All grouping was made to reveal, as far as possible, two different effects of circumstance. The first had to do with the immediate effect of the trees while they were still young. The second had to do with the remote effect of the mature trees. One "requires a large proportion of quick growing trees, and sets them at shorter distances apart with a view to future thinning with the axe. The other utilizes the slow growing, hardier trees, planted at wider intervals, suitable to their final size, interspersed, however, with a fast growing variety of kindred form, to be removed whenever crowding w^hould begin." (28, p. 188)

Each individual group was carefully arranged so as to avoid crowding the trees and, therefore, preventing them from

becoming a close regular "clump". What was desired in each instance was an easy-flowing outline of the group. Such groups would be full of openings and hollows and of trees advancing before, or retiring behind each other; "all productive of intricacy, of variety, of deep shadows and brilliant lights." (28, p. 188)

The primary objective which was necessary in the formation of groups was to place them so that the whole would exhibit the variety and intricacy found in nature. President Welch felt that the formulation of specific rules governing the placement of tree groups would only lead to the regular geometric sameness which he was trying to avoid.

No invariable rule can be given for the arrangement of trees on extensive lawns, since a variation of surfaces demands a variation of plans, but in general it may be said that the first setting should extend along the roads and walks, ...and crown the elevations wherever found. (28, p. 188)

President Welch sensed a pleasing rhythm in the wells of the prairie surface, and he tried to preserve this sense by planting even the gentlest eminence thus increasing its apparent height, and importance.

In order to maintain harmony within a group or throughout a succession of groups, it became necessary to organize the procedure of selecting trees. This effort resulted in the formulation of three broad classifications of character expression. The sameness of character that was desired in each instance had to do, firstly, with the trees outline or silhouette

and, secondly, with its texture and color. The classification was further refined to include the difference of character expression which resulted from the use of a tree in a group rather than singly or vice-versa. The three divisions of character expression were "round-headed trees, oblong or pyramidal trees, and spiry-topped trees." (12, p. 103) The "round-headed" trees made up the largest division and included all those trees which had an irregular surface and varied outline, but exhibiting "in the whole a top of head comparatively round, as the oak, ash, beech, and walnut." (12, p. 103) The "spiry-topped" trees had straight leading stems and horizontal branches which were comparatively small and tapered gradually to a point. Most of the trees in this class were evergreens comprising "the spruce and fir families, most of the pines, the cedar, and among deciduous trees, the larch." (12, p. 103) The "oblong-headed trees had heads of foliage more lengthened out, more formal, and generally more tapering than round-headed ones." (12, p. 108) The "oblong-headed" trees had upright branches and formed a conical or pyramidal mass of foliage. The Lombardy poplar was considered as representative of this division.

I have included the above terminology because it was frequently employed by President Welch to describe the condition by which a harmonious group was created. This terminology was directly inherited from A. J. Downing; it is the terminology which I will use to describe the original planting design

constructed on the grounds of the Iowa Agriculture College.

President Welch desired to produce beautiful variety which would neither develop into confusion nor verge into monotony. In order to achieve this goal he composed groups of trees which, firstly, communicated a leading expression of character and which, secondly, promoted variety through juxtaposing of an intermediate expression of character. The leading character which he sought to express was that of a long-sweeping line. The maple used alone would have achieved this effect; however, in groups, maples alone produce sameness. In order, therefore, to give variety he chose other trees which were different from the maple in some respects and similar in others.

On what is now a central campus park, President Welch set out in irregular groups "round-headed" trees of maple and oak. Variety was achieved by combining and mingling with the "round-headed" trees "spiry-topped" trees. An excerpt from a paper by A. J. Downing, perhaps, best describes the composition which may be seen from the steps of Beardshear Hall.

A tall larch or two, or a few spruces rising out of the center of an oak, maple group, give it life and spirit, and add greatly, both by contrast of form and color, to the force of round-headed trees. A stately and regular scotch, austrian, or white pine, or a few thin groups of the same trees peeping out from the midst, or bordering a large mass of deciduous trees, have great power in adding to the interest which the same awakens in the mind of the spectator. (12, p. 107)

The grand purpose of President Welch's effort was the view from the front windows of the Main Building. It was a view of a wide surface partially broken up and divided by

groups and masses of trees into a number of pleasing lawns or openings, differing in size and appearance, and producing a beautiful scene either when seen from a given point or when examined in detail.

B. Garden Landscape from 1884 to 1906

1. Designers

Dr. W. M. Beardshear was a graduate of Otterbein University, pastor of the United Brethern Church in Arcanun, Ohio, president of Western College in Toledo, Iowa, superintendent of schools in West Des Moines, Iowa, and president of the Iowa State College of Agriculture and Mechanic Arts.

2. Concept

The emphasis of President Beardshear's landscape involvement was in the realm of philosophical principles. He sought to define the metaphysical properties of a sublime rural landscape and thus articulate the meaning of a rural life. Only in a very limited sense did he begin to seek the design solutions by which his rural principles might be achieved. Rather he created the opportunity and supported the efforts of others who sought the reality of landscape design.

The concept of landscape design for this period was loosely defined and never really became separated from the principle which generated it. The landscape and, specifically, the rural landscape was conceived as a hygenic norm in which

philosophical benefits were derived from a knowledge about rural resources, and physical benefits were derived from the performance of rural skills.

Science and technology were rapidly making the rural landscape convenient and totally accessible. They were putting within the reach of mankind an environment restrained by neither the hardships of wild nature nor the contamination of high density. The rural landscape was seen as a happy medium in which the resources of both man and nature had been quietly and neatly distributed for the betterment of health and convenience.

One of the most desirable possessions in the rural environment was a garden. The garden offered the opportunity to watch and compute the progress of vegetation as well as the opportunity to arrange the vegetation to achieve the subtle effects of art. The enjoyment resulting from the possession of a garden was centered in the endless variety which it produced, either by the "perpetual progress of the vegetation, or by the almost innumerable kinds of plants which could be raised."

(29, p. 415) The garden was the scientific cumulation of a knowledge about the nature of nature; it was a focus of nature's resources, and it was a focus which was regarded as inherently beautiful.

The natural elements desired for the rural garden were primarily the quick-growing plant materials such as flowers, shrubbery, vegetables, and some trees. Trees were desired to

enclose the garden or to increase its vertical dimensions; however, these desires were of secondary importance. What was of greatest interest in the rural garden was the perpetual change exhibited by the plant materials from season to season and from year to year. President Beardshear often wrote about this particular quality of nature.

Each variety of plant is grouped by itself; the tall-growing plants are surrounded by the low ones. The plants are selected so as to have the longest duration of flowers and foliage through the varied parts of the season. The spring flowering bulbs are first used freely and then give way to flowers of later production. Dutch bulbs are interspersed with hyacinths, scillas, narcissi, anemones, tulips, and crocuses... But it will be of no use to make an effort in this direction without proper preparation of soil, a fair knowledge of the nature of the plants themselves, and a due regard for their culture and training when planted. (1, p. 158)

It was not discouraging that a certain amount of simple or rude labor was necessary in order to have a garden. Rather this event was accepted as an appropriate exercise in a noble cause-and-effect relationship. As the garden was ever changing so also were the different operations of gardening; in fact, the ever-changing scientific relationship between man and his garden was conceived as being an essence of rural living.

The difficulty with this concept of a rural life and a rural landscape is that it neglects to consider that we desire more than scientific education, health, and convenience. Importantly, we also desire a balance of visual forces which is so perpetual in its interest and so harmonious within its

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Figure 3. Iowa State College of Agriculture and Mechanic Arts
from 1884 to 1906

1. Main Building
2. President's and Treasurer's Office (E.O.B.)
3. Professor's home
4. Hospital
5. Music Hall
6. Veterinary Hospital
7. President's home
8. Creamery
9. Professor's home
10. Professor's home
11. Farm House
12. Barns
13. Barns
14. Horticulture Building
15. Agricultural Hall
16. Margaret Hall
17. Faculty Club
18. Morrill Hall
19. State Field
20. Motor Station
21. Water tower
22. Chemistry
23. Engine shed and work shop
24. Power station
25. East Boarding Cottage
26. West Boarding Cottage
27. College Creek

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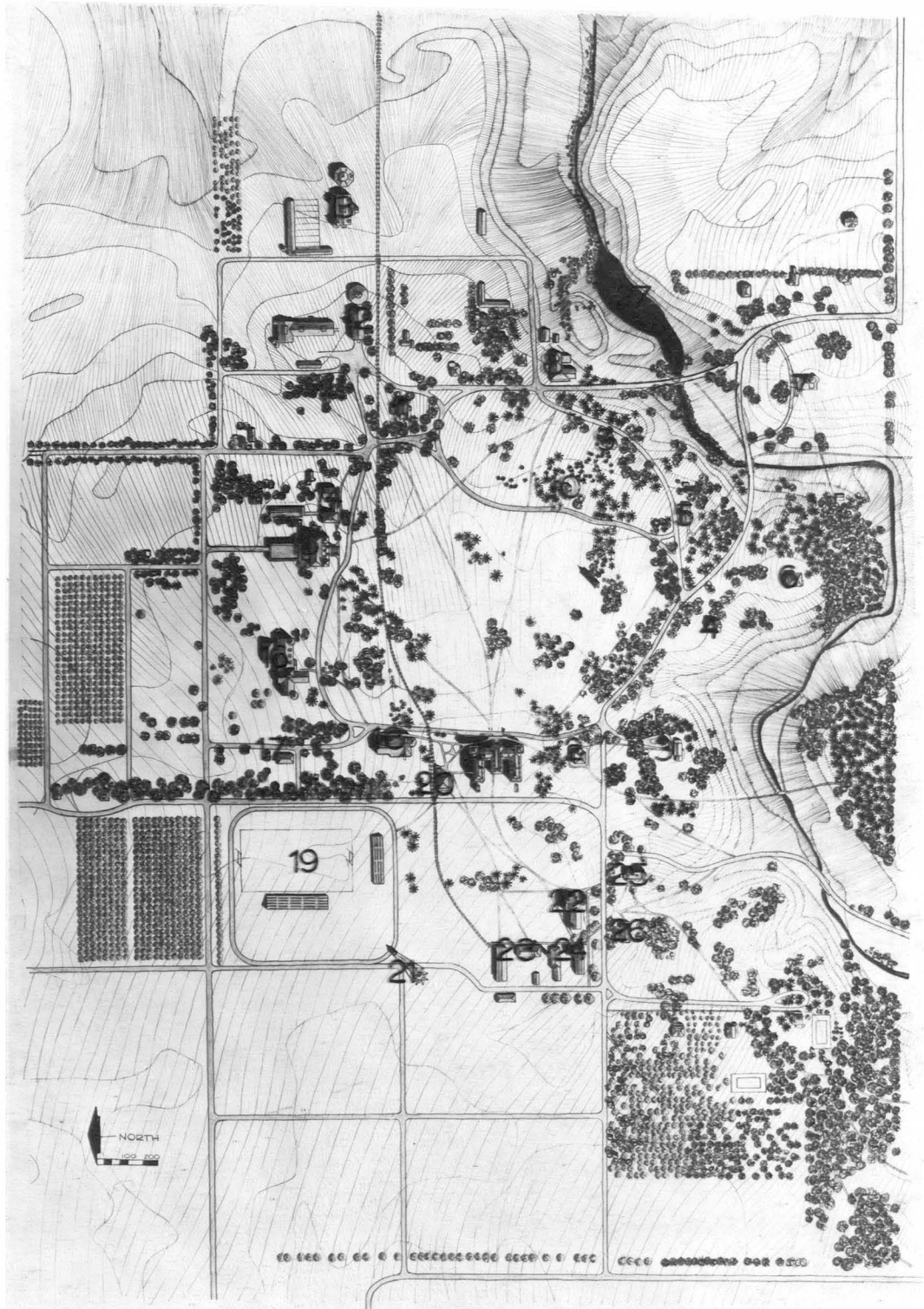
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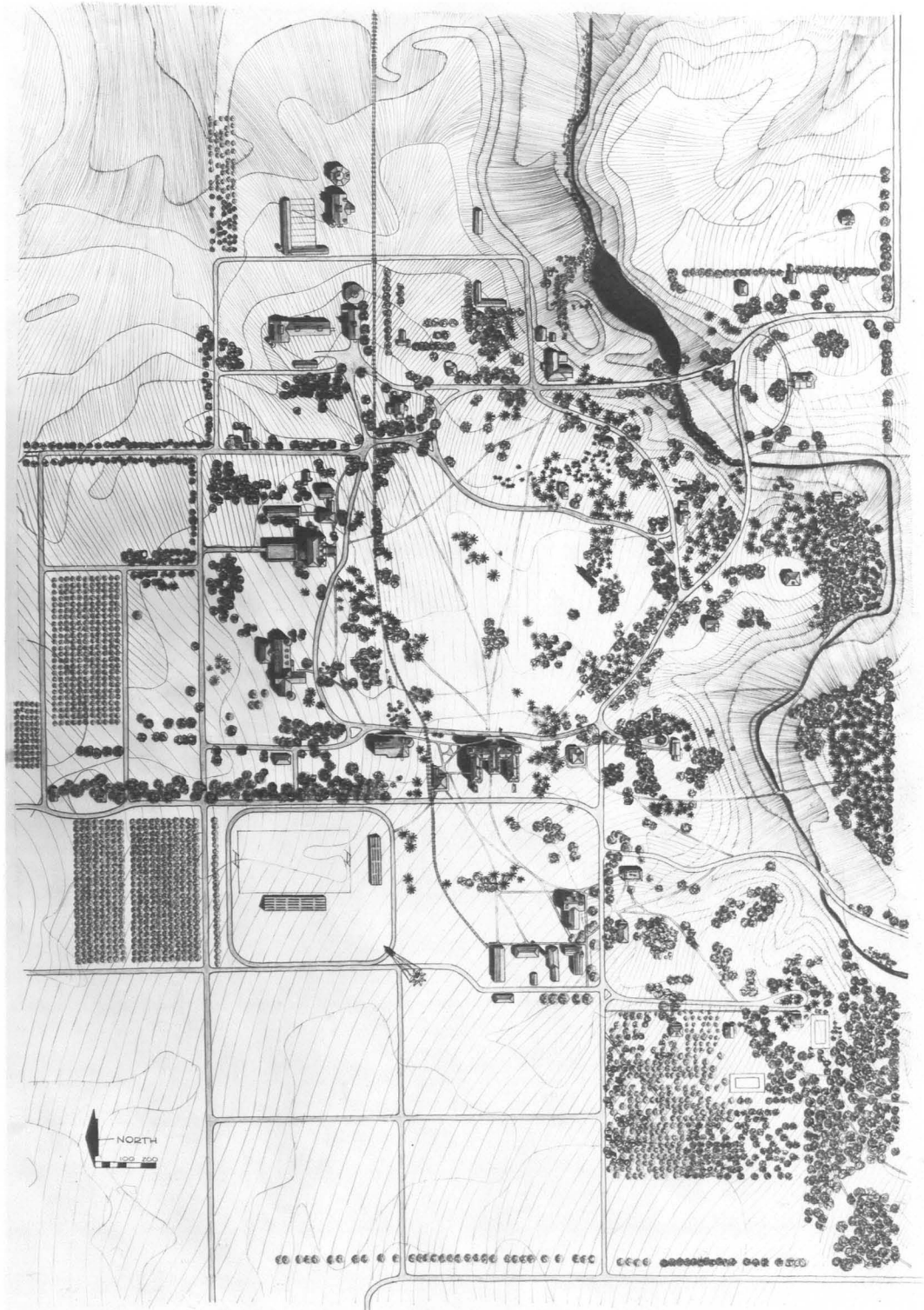
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context that it exalts us by stirring our imagination; what we also desire is a meaningful articulation of esthetic purpose.

3. Design

The landscape designers who have followed President Welch have mutually inherited the problem of adapting a freely expanding university to a stationary natural park. It is not surprising, therefore, to find that the College expansion which took place during the second development period sought to achieve the same advantageous position enjoyed by the original College. President Welch had developed a superb landscape concept based upon the visual significance of a middle landscape visible from the Main Building. Although he located some of the minor College buildings including the present-day Sloss Cottage, Osborn Cottage, and Music Hall, he did not fully articulate a concept which would specifically relate additional buildings to the College landscape. In theory, he inferred that an irregular natural discipline which derived its meaning from the individual peculiarities of a site should be employed to locate and align buildings. In practice, however, he abandoned an irregular natural discipline in favor of an unconditional geometric discipline. He initiated on the "college lawn" a free-geometry which established a north-south ninety degree relationship between buildings. In effect he was non-tradicting his basic landscape theory by placing an emphasis on

the relationship between one building and another instead of between one building and a landscape.

The discipline of free-geometry was employed on a large scale during the second development period. The result was an ambiguous building to building relationship--an over-powering building to landscape relationship. The new major College buildings boldly interrupted the flowing quality of the landscape. They did not delicately compose the landscape rather they dominated it; they sought to take advantage of the pastoral views in the same manner as had the Main Building, and in the process they closed off the very views which they were seeking.

Nevertheless, if the distant views were no longer important, the near views available while moving along the walks were important. The new widely separated College buildings had created a need for a system of walks connecting these buildings. It was desired that these walks should be convenient to the movement between buildings while at the same time ordered according to the principles of art. Thus a walk could be straight or curvilinear depending upon the obvious visible reason for its being either one way or another. With curvilinear walks

...no bend could ever be made that had not an obvious cause in the disposition of the flower-beds, or of groups of trees and shrubs placed along its margin, or in the inequalities of the surface of the ground. (37, p. 164)

With a straight walk it should accompany a wall or linear

features in the landscape.

The emphasis in developing concepts to order the appearance of walks resulted in an elaborate system of walks which covered the extremes of the College grounds as well as the distance between buildings. Movement along these walks provided continuous delight in the perception of rural resources.

Here we can see an application of the limited concept of esthetic purpose. No longer was the composed measure of a prairie landscape regarded as the essence of rural delight. Rather convenient access to rural resources was regarded as the essence of rural delight. It followed then that the College walks which were supposedly ordered according to the principles of art were in reality ordered purely according to the demands of access. Esthetic purpose was conceived as solely the perception of beautiful individualities. Thus the elaborate system of College walks provided a convenient surface for movement about a central campus scattered with such man-made individualities as a building, a railroad track, or a water tower and such natural individualities as a lake, an orchard, or a forest. At a smaller scale, the College walks provided a convenient surface for movement about a central park scattered with such natural and man-made individualities as geometrically arranged flower beds, specimen plants of all sorts, water fountains, piles of cannon balls, or work sheds.

Accordingly, the landscape changes which took place during the second development period were either shallow in

their conception of design or obvious in there lack of concern for design and integrity of the whole. The overwhelming concern was not for an intellectual integration of natural and technological resources but rather for an arbitrary collection of these resources.

C. Symmetrical Landscape from 1906 to 1916

1. Designers

Mr. J. C. Olmsted was the first president of the American Society of Landscape Architects, partner in the landscape architectural firm of Olmsted Brothers, Brookline, Massachusetts, and son of Frederick Law Olmsted, designer of New York City's Central Park and San Francisco's Golden Gate Park.

Professor A. T. Erwin was a graduate of the University of Arkansas and Iowa State University, employee of the landscape architectural firm of Olmsted Brothers, president of the Iowa Horticulture Society, and now Emeritus Professor of Horticulture at Iowa State College.

2. Concept

Mr. J. C. Olmsted presented to the College administration a written report in which he conceived the Iowa State College landscape as an integral rectilinear town and natural park. In the report he introduced general ideas about the nature of the College as either a park or a town and proposed specific ideas about the form of the College as an integrated park-town. The

report contributed a bold concept to guide the changes in the College landscape. Unfortunately, however, there occurred a reciprocal breakdown in communication between Mr. Olmsted and the College; the College recognized in Mr. Olmsted's report only a concept of specific ideas about rigorous symmetry and monotonous geometry. As a result, it rejected the report and in doing so it discarded significant general ideas along with less significant specific ideas.

One of the difficulties was that Mr. Olmsted's report was received as a working plan when in reality it was a broad concept plan. Mr. Olmsted himself did not make this important distinction clear and indeed he confused the matter by closely integrating in his report design details with larger design concepts. For instance, the broad design concept outlined in the report generated an idea about a total Iowa State College landscape which was obvious in its separation of densities. However, the College did not get past its concern over the design details presented in the report about formal or symmetrical relationships. As a result, the broad design concept about contrasting densities received little or no attention and investigation.

Another difficulty was the inherited ideas and attitudes about the meaning of a building in a landscape. Specifically, the classical building with its symbolic overtones generated prejudices in Mr. Olmsted and the College administration which

lead to confusion and misunderstanding and ultimately to a rejection of the landscape concept proposed for the third development period. In order to understand the scope of these prejudices and, respectively, the reason for this rejection, we must begin with the idea of the classical building in the College landscape.

By the time Mr. Olmsted had visited Iowa State College two classical buildings had already been introduced into the landscape and a third one was in the planning stage. The idea of these buildings was initiated by President Beardshear and was a direct response to the 1893 World's Fair held in Chicago. The Columbian Exposition, as the fair was called, was designed to demonstrate the great industrial empire and to dignify the new empire by "clothing it in the robes of classic form."

(19, p. 81) "Daniel Burnham, the chief architect for the Columbian Exposition, uttered the magic words that marked a new era: Make no little plans." (19, p. 81) The fair launched a movement of "classic revival" and city planning which swept the country. We can sense some of the enthusiasm for this movement in the following excerpts from one of President Beardshear's essays:

The magnificent buildings that sprang up at the world's fair as if summoned by the magic touch of some Aladdin's lamp in the hands of a divinity, first of all came through the most patient plan and detail... (1, p. 201)

The immediate outcome of the Columbian Exposition was the grandiose city plan prescribing absolute symmetry, broad paral-

lel avenues and intersecting diagonals, and distant vistas terminated by a monumental building, sculpture or fountain. The grand schemes were a response to chaos resulting from a rapid and unorganized change of physical events. Everywhere the man-made environment was esthetically inharmonious and functionally unworkable. According to D. H. Burnham, "the World's Fair of 1893 was the beginning in his day and in this country of an orderly arrangement of extensive grounds and buildings." (4, p. 4) Western history and, specifically, the Renaissance "grand style was called upon to create a great entity, a well-ordered, convenient and unified whole." (4, p. 4) Time was of the essence and the "grand style" provided a ready-made solution at a scale which would have been immediately recognized as a statement about stability and order.

Ironically, the Columbian Exposition did not display the geometric regularities which were abstracted from it. There were no axial vistas or monumental focuses upon which one could gaze while postulating a singular meaning in a culture. Rather there were urban consolidations and pedestrian conveniences complexly integrated to achieve subtle contrasts and irregularly balanced to maintain harmony of the whole. Buildings were no more or less important than the landscape which they intimately defined or composed. Particularly, classical buildings with their symmetrical proportions and wrap-around facades were uniquely related to the landscape. Used to a 360

degree advantage their fronts and adjacent sides spacially defined a plaza, square, or passage while their backs and adjacent sides pictorially or sequentially balanced an urban or park composition.

The grand schemes generated by the Columbian Exposition were symbolic statements about the quality of a culture--a culture which was destined to permanency and dignity. On the other hand, the actual exposition communicated a more patient and purposeful statement about a way of life--a life which was consciously and complexly involved with many harmonious yet contrasting experiences.

The significance of this portion of history lies in our inherited ideas and attitudes about the elements which survived the period. Although neither the prototype classical building nor symmetrical landscape realistically expressed a way of life, clearly the symmetrical landscape proved to be in discordance with a freely-expanding democracy. The result is that for all of the plans and inspirations primarily the classical reached the status of reality. What was needed to harmonize an explosion of singular interests was a comprehensive statement about a way of life. Instead what was adopted was a limited statement about an aspect of culture--an aspect symbolized by the classical building.

Particularly in the prairie region the classical building was regarded as a fitting expression of a culture. Its massive

proportions and richly textured facade interrupted the vast-flowing prairie with an equal and challenging rhythm and scale. Whether in the city prairie or park prairie, its monumental status established a symbol for dignity and permanency.

Mr. J. C. Olmsted stated in his report that Iowa State College had outgrown and would continue to outgrow its campus plan of widely separated buildings. He noted of an expanding campus plan that the distance between buildings would increasingly become an inconvenience. He further noted that causally enclosing the natural park with buildings would enormously increase the traffic through the park, and that this event would ultimately destroy the park by dividing its lawns.

To meet the College's need for indefinite expansion and desire for preservation of the natural park, Mr. Olmsted proposed a dense arrangement of buildings radiating from two sides of an extended natural park. He believed that a design of a nucleus with 180 degree radiating fingers would preserve the natural park and permit the College an orderly yet indefinite expansion.

The concept was logical and there appears to be little doubt that it would have been more favorably received if it were not for the classical building and its singular importance as an idealized object in the landscape. Inherited ideas about the meaning of a building in the landscape and, particularly, about the meaning of a classical building led both Mr. Olmsted

and the College to desire repose between buildings in a group. This event reflected a subtle desire for an expression of building individuality. An alternative would have been a desire for calculated tension between buildings and, consequently, a desire for a dynamic expression of the total group of buildings. The point is that the differences which came to light between Mr. Olmsted and the College were not differences in design principles but relatively insignificant differences in design methods. Mr. Olmsted proposed a reciprocal reposal and, respectively, a symmetrical arrangement of College buildings. On the other hand, the College desired a staggered reposal and, respectively, an informal arrangement of College buildings. Had Mr. Olmsted fully articulated his broad concept of the College as a town-like entity which focused on density, there probably would have been enlightening differences in basic purpose.

3. Design

Mr. J. C. Olmsted's proposed landscape design called for a rectilinear series of academic rows. In brief, these rows were to originate with a north-south line immediately to the rear of Beardshear Hall and an east-west line immediately north of Engineering Hall, renamed Marston Hall in 1947. The total academic grid then was to be unified by symmetrically relating proposed and existing major classical buildings. Although Mr. Olmsted's proposal for radiating academic rows was not adopted,

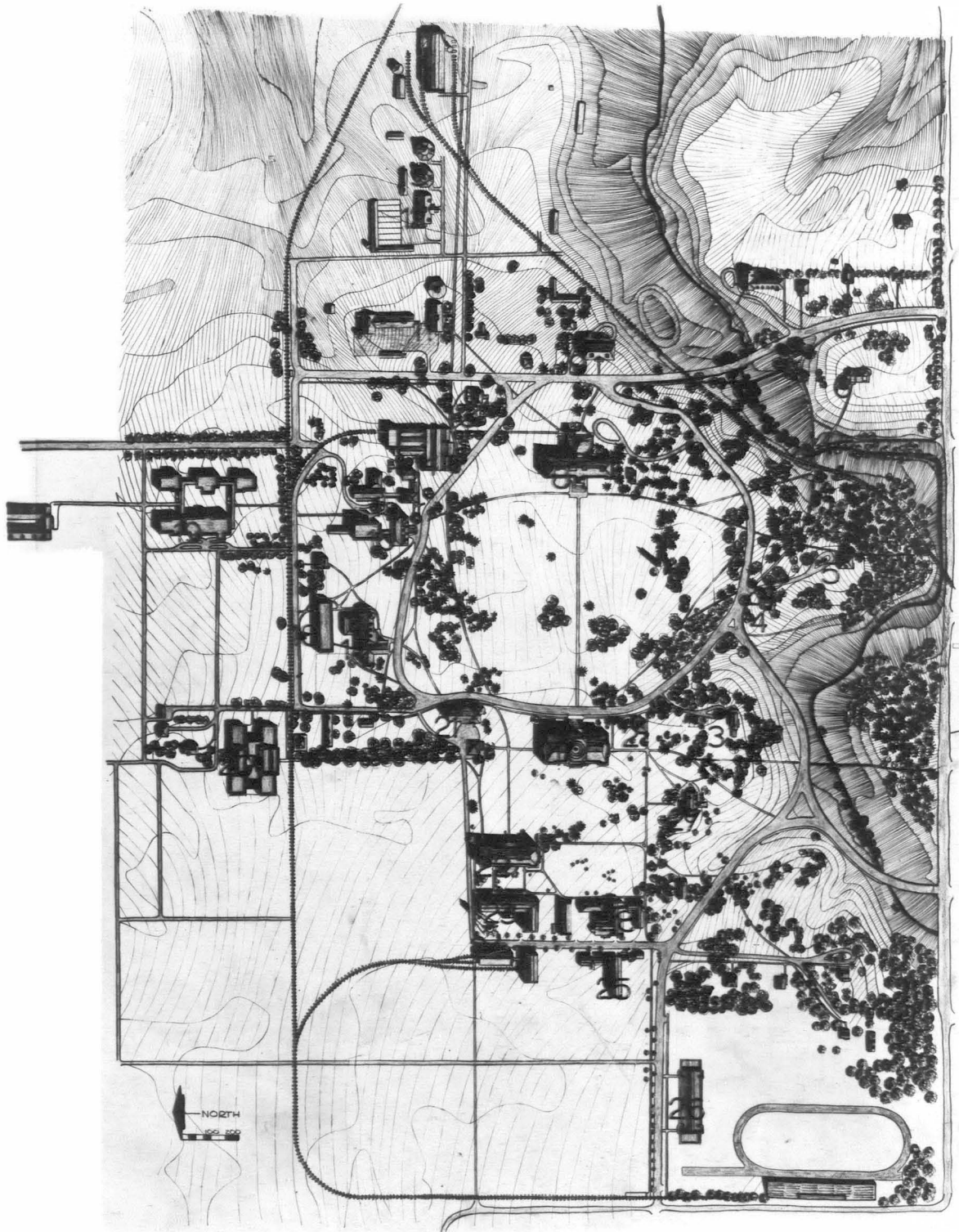
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Figure 4. Iowa State College from 1906 to 1916

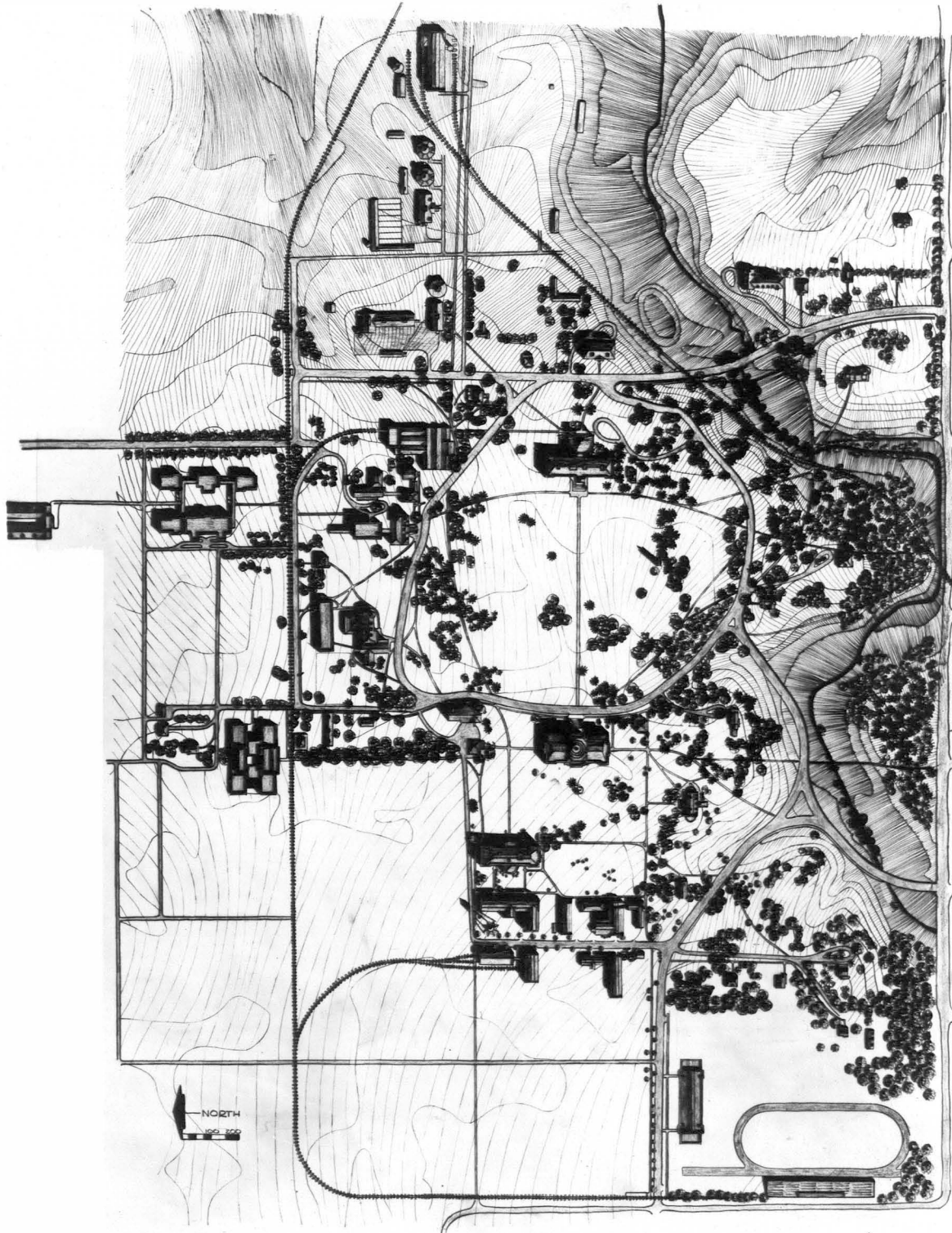
1. Central Building (Beardshear)
2. Superintendent's Office (E.O.B.)
3. Professor's home - Maples
4. Music Hall
5. Veterinary Building
6. Knoll
7. Professor's home
8. New Agricultural Hall
9. Dairy Building
10. Farm House
11. Barn
12. Experiment Station Barn
13. Judging Pavilions
14. Green House and Horticulture Building
15. Plant Industry Building
16. Agricultural Engineering Building
17. Margaret Hall
18. Home Economics Building
19. Veterinary Quadrangle
20. Chemistry Building
21. Morrill Hall
22. Engineering Hall
23. Engineering Annex
24. Training Shed
25. Machine Shop
26. Men's Gym
27. Alumni Hall
28. Old Engineering Hall

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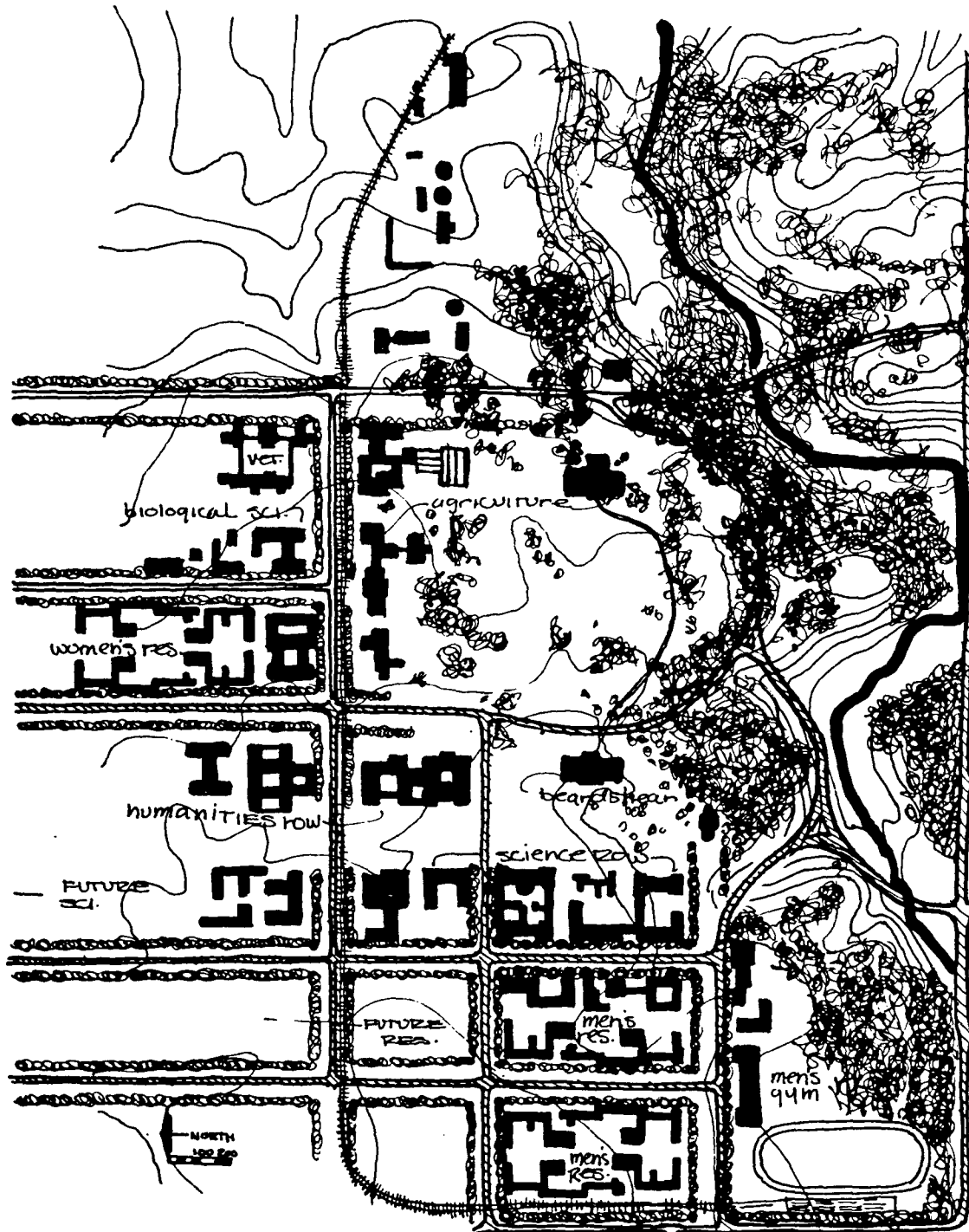


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Figure 5. Plan Sketch Illustrating Mr. J. C. Olmsted's
Concept of Iowa State College as a Natural
Park and Radiating Rectilinear Academic Town



some of his other less dramatic proposals were adopted. The railway was removed from the central lawn and relocated north of Margaret Hall, destroyed by fire in 1938. Also, Mr. Olmsted's recommendation was followed in the location and grading of Agriculture Hall, renamed Curtiss Hall in 1947.

There were many changes in the College landscape during the third development period. These changes included many new buildings, paved roads and sidewalks, and new plantings. For the most part, these changes were coordinated and guided by the Building and Grounds Committee and, particularly, by the Secretary of that Committee, Professor A. T. Erwin. Decisions which this committee formed in the realm of landscape design were primarily based upon functional reasoning; consequently, the result of their effort was an orderly landscape development. However, if the landscape development was orderly it was also undramatic; it lacked the spirit of sensitive variety and complex harmony which can only result from interplay of both functional and esthetic reasoning.

D. Sculptural Landscape from 1916 to 1923

1. Designers

Mr. O. C. Simonds was president of the American Society of Landscape Architects and a principal in the landscape architecture firm of O. C. Simonds, Chicago, Illinois.

Dr. L. H. Pammel was a graduate of the University of

Wisconsin and of Washington University, chairman of Iowa State Board of Conservation and head of Botany at Iowa State College.

2. Concept

Mr. O. C. Simonds believed that the greatness of a landscape was the power of its esthetic scenery to "enrich one's spirit and feed one's soul." (57, p. 233) Specifically, the esthetic scenery to which he referred was an articulated view of the country, the woods, the ocean, lakes, rivers, and mountains; in short, a view of nature. Whereas Mr. J. C. Olmsted developed a broad landscape concept to give definition to the collective purposes of Iowa State College, Mr. O. C. Simonds developed a refined landscape concept to dramatize a personal esthetic experience of the College.

Mr. Simonds conceived the College landscape as a sculptured natural park. In actuality, his sculptural landscape design was a subtle variation of the pictorial landscape design articulated by President Welch. President Welch designed a series of natural pictures in which his principle concern was the compositional balance of foreground, middle ground, and background outlines. Mr. Simonds, on the other hand, designed a sequence of natural scenes in which his principal concern was the compositional integration of complexly flowing masses. An important distinction between the two related esthetic theories is that President Welch's natural pictures were designed to be viewed from certain designated advantage points while Mr.

Simonds' natural scenes were designed to be viewed while moving along a way which was continuous and ever-turning in direction.

Mr. Simonds recognized that the vastness expressed in the open prairie had the unique power of drawing one out and arousing one's curiosity to investigate what is beyond the horizon. Like President Welch and his serious contemporary landscape architect, Jens Jensen, he discovered in the prairie a spirit which gave direction to his creative work. In reality this spirit stemmed from a personal interpretation of the essence or natural harmony of a prairie--a natural harmony which he interpreted as quiet surprise.

Mr. Simonds synthesized from his experience of the prairie landscape a very gentle and ultimately very important oscillation of his sense of position. This synthesis expresses a subtle but nonetheless significant contradiction in the human perception of a prairie landscape. Certainly if the vastness of the open prairie has the power to draw one towards the mystery of the horizon, it also has the power to turn one away from the monotony of the disposition. Yet it is not simply vastness which contradicts the human perception of a prairie landscape. It is vastness along with some qualities inherent in vastness such as obviousness, directness, and oneness to name just a few. These are the overwhelming qualities which suggest that the only limit to one's knowledge of a prairie landscape is the horizon. The subtlety here is the implication

that the prairie horizon is a real place.

What excited the prairie landscape designers was not the mystery of a sweeping horizon but rather the ambiguous sense of human position which that horizon not only had the capacity to stir one's imagination but it also had the capacity to dull one's senses. Without definition the prairie landscape with its dominating horizon has only the vaguest sort of human meaning. There is a need as large as the prairie itself for a place in its vastness or oneness which has the scale of a human and which can serve as a measure and thus give meaning to the prairie and its horizon. This concern for a human sense of place was a reoccurring theme both in President Welch's pictorial landscape and in Mr. Simonds' sculptural landscape. It is important to note that the sense of place or feeling of position which these designers sought to incorporate in their designs was not necessarily a place which one was supposed to physically seek or use. In fact, for their deepest meaning these landscape places were not meant to be entered; they were meant to be looked at, through, and around. They were not meant to be compartments which divided the prairie, but rather elements which composed the prairie; they were meant to be a beautiful measure of a poetic prairie.

This sense of place which Mr. Simonds incorporated in his landscape designs was a sense of small personal worlds which had local influence; it was a sense of quiet surprise

which resulted from the discovery of an unknown prairie valley or dale.

Mr. Simonds created these small worlds of quiet surprise by massing foliage to define a meandering way of recessional mystery and charm. He was always careful, however, "that from a given point looking in one direction there should be one picture and in this picture some special feature should predominate." (57, p. 8)

An interesting method which we can employ in order to begin to understand the meaning of the foliage mass in the sculptural landscape is to compare it with the lawn in the pictorial landscape. In the pictorial landscape the lawn or smooth surface is the flowing norm which is diversified by groups of trees; it is the light in a picture of high contrasts. The reverse is the sculptural landscape where the foliage mass or molded surface is the undulating norm which is relieved by sinuous ribbons of grass, water or pavement; it is the projection in a sculpture of easy rhythms. The sculptural landscape as molded by Mr. Simonds had a lineal quality which gave it direction and thus enabled it to release the quiet drama of recession. Unlike the sense of directness and obviousness which a landscape vista would have displayed, Mr. Simonds' landscape recession displayed a sense of softness and mysteriousness. He said about landscape art that

The interest in any view is increased by an arrangement which piques one's curiosity. Think of the woods into

which one gets glimpses leading to unknown depths, bays of lakes disappearing behind islands or promontories, lawns partly hidden by projecting groups of shrubs. These give possible opportunities for making discoveries, and such opportunities compete with variety in giving spice to life. (57, pp. 13-15)

3. Design

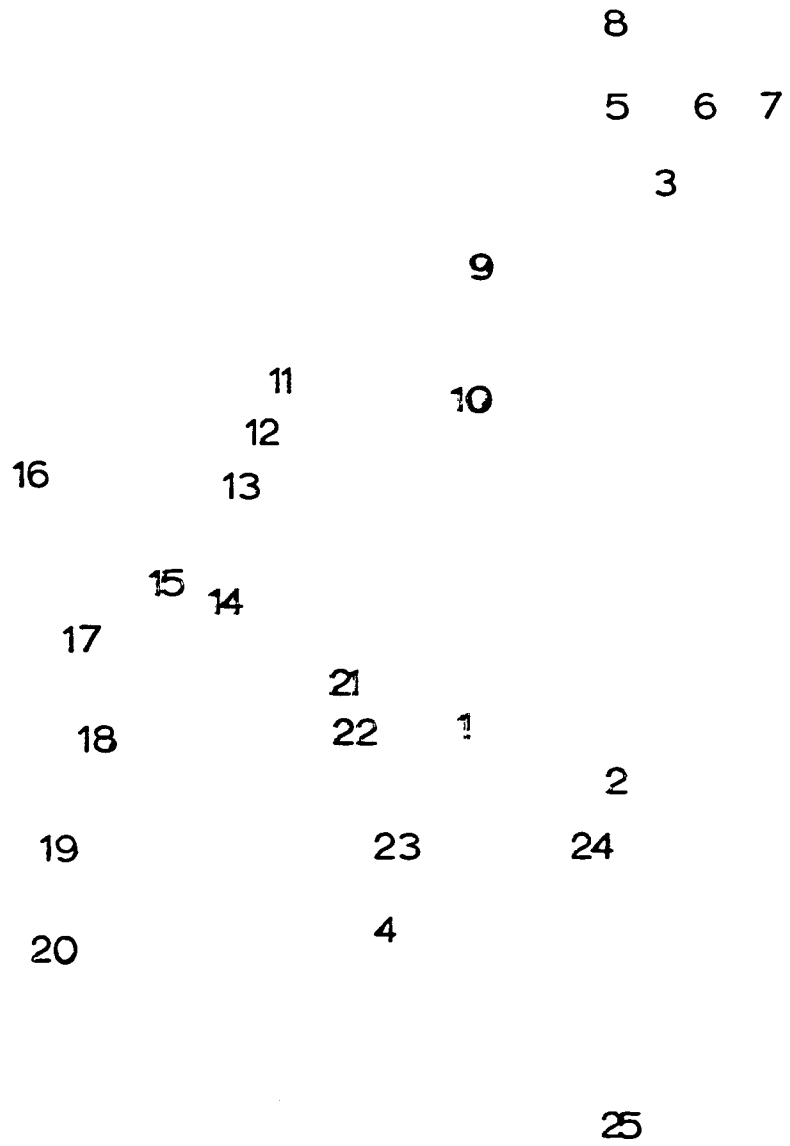
In the contemporary central campus landscape there are few remaining planting designs which show evidence of Mr. Simonds' sculptural landscape design principles. The most notable of these designs can be recognized in the front view of Curtiss Hall. The design involves the building, a single elm located slightly in front of the building and immediately to the side, and the vine, shrub or small tree plantings near the base of the building. However, a consistent application of Mr. Simonds' sculptural landscape principles suggests that this unaltered planting design was never completely finished. The details of the design which are missing include a massing of shrubs underneath and adjacent to the trees and a meandering approach walk. While these details may seem relatively insignificant they are nonetheless basic to the unity of a plastic approach to landscape design. Without transitional shrubs the effect of a tree or even a group of trees as a sculptural mass is almost totally diminished and without a meandering walk the effect of flowing continuity is interrupted.

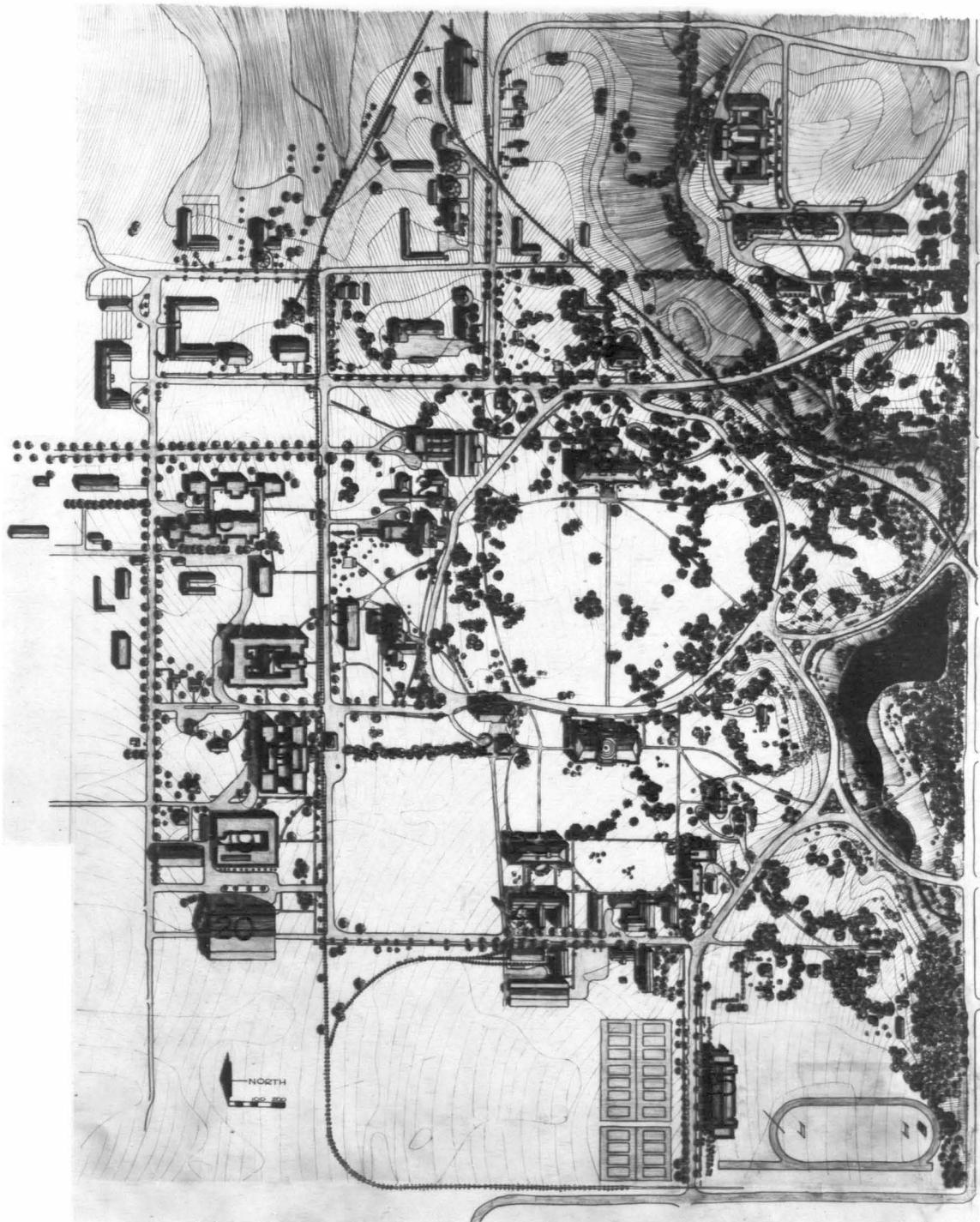
Mr. Simonds would have purposefully positioned a foliage mass in front of Curtiss Hall so to challenge the buildings

Figure 6. Iowa State College from 1916 to 1923

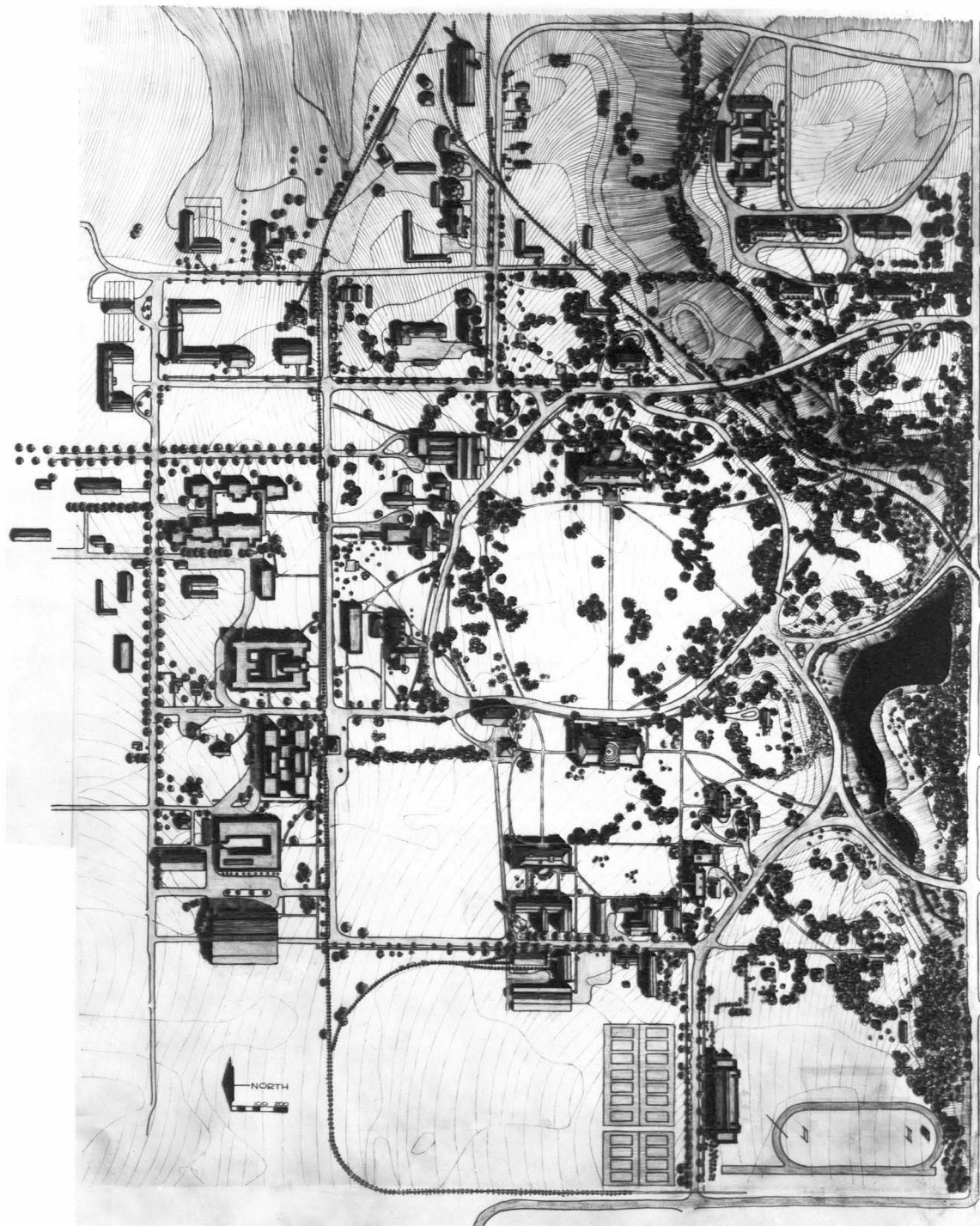
1. Central Hall
2. Alumni Hall
3. West Hall
4. Engineering Annex
5. East Hall
6. South Hall
7. New Dormitory
8. Oak and Elm Lodges
9. Dairy Building
10. Agricultural Hall
11. Plant Industry Building
12. Horticulture Building and Greenhouse
13. Old Agricultural Hall (Botany)
14. Margaret Hall
15. Home Economics Building
16. Veterinary Quadrangle
17. Physics Building
18. Chemistry Building
19. Agriculture Engineering Building
20. Armory
21. Morrill Hall
22. Post Office and Book Store
23. Engineering Hall
24. Alumni Hall
25. Men's Gym

56c





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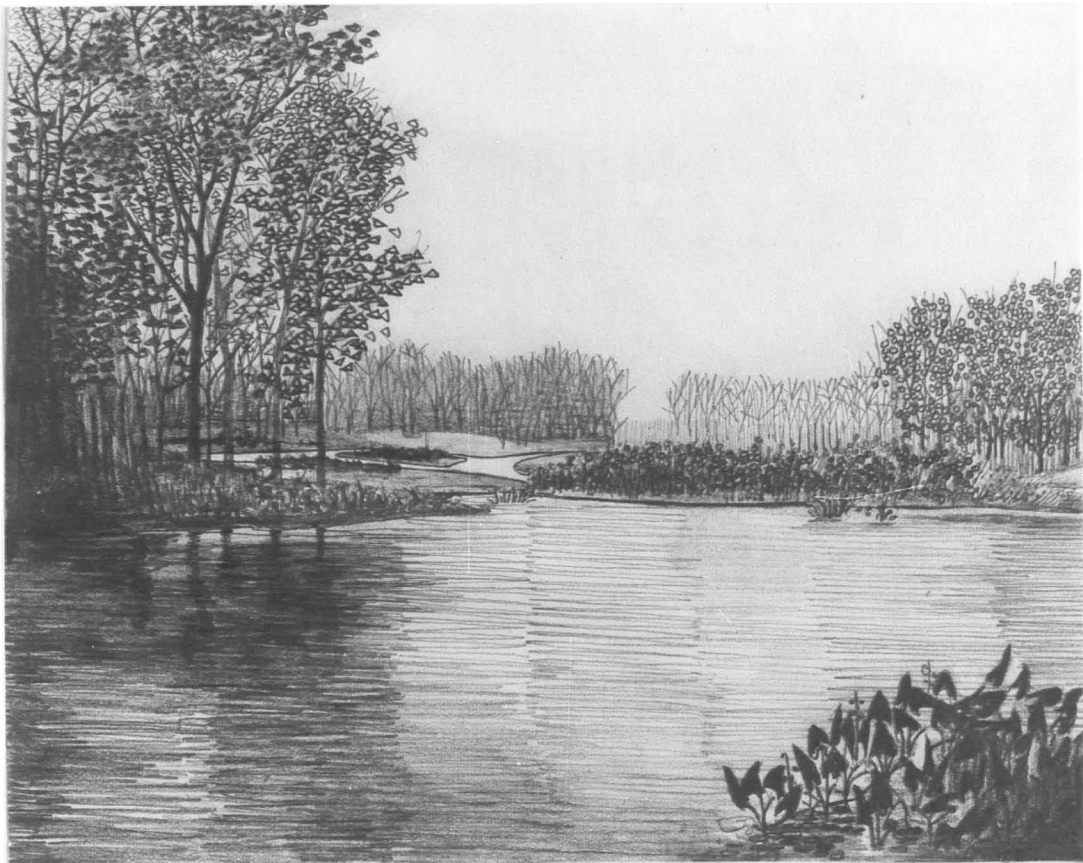


scale. Specifically, he would have directed attention in a middle-distant view away from the singular expression of a monument towards the complex expression of a composition. The combination of building and foliage masses would have been integrated so as to achieve an asymmetrical balance of overlapping and interpenetrating forms.

Mr. Simonds' fully articulated sculptural landscape design was constructed in the vicinity of Lake LaVerne. His work in this area was extensive and included the lake design as well as an extensive planting design. At that time there were no major buildings in the southern portion of the campus and, respectively, no building masses in his sculptural compositions. In the pure foliage compositions around the lake, Mr. Simonds incorporated the sky in the same manner as he would have incorporated a building in a composition by asymmetrically dipping the foliage masses so as to almost scoop up the respective sky or building. In comparison with the central lawn area, the Lake LaVerne area was smaller and more intimate in scale. By carefully molding rather delicate masses of shrubs and small trees, Mr. Simonds was able to successfully dramatize this quality through harmony.

Particularly in the realm of planting design, Mr. Simonds articulated comprehensive design theories to guide works of landscape art such as the Lake LaVerne composition. To a large degree these design theories were adaptations of compositional theories about color, texture, and contrast which painters and

Figure 7. Sketch Views of College from 1916 to 1923



VIEW LOOKING WEST ON LAKE LAVERNE ILLUSTRATES
SCULPTURAL INTEBRATION OF MASSES.

ADAPTED VIEW OF
CURTISS HALL ILLUS-
TRATES HOW MR.
SIMONDS WOULD
HAVE ACHIEVED
RHYTHMIC CONT-
INUITY THROUGH
THE INTERPENE-
TRATION OF
MASSES AND
MEANDERING
SURFACE.

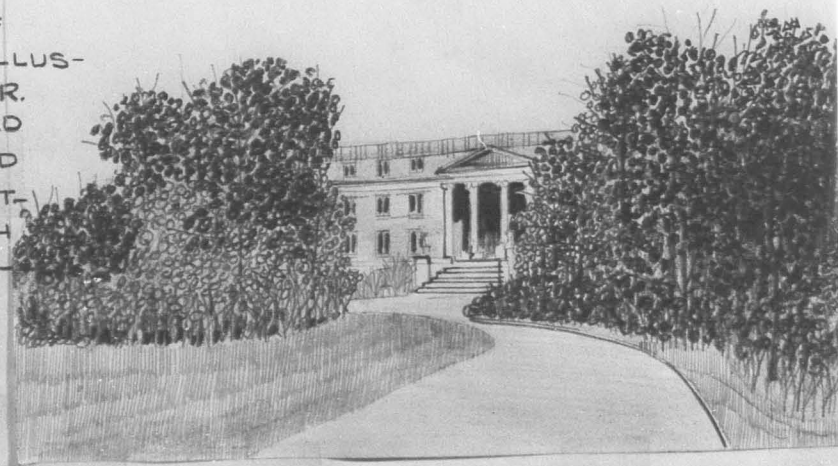


FIGURE NO. 7

sculptors had employed for centuries. In order to apply these theories, however, Mr. Simonds reasoned that

One must know plants, know how they look, how large they will grow, when they leaf out in the spring and drop their leaves in the fall, the colors they put on at various times, the date of blossoming and fruiting, and all the facts that have a bearing on their appearance. One must know the soil each species likes to grow in and the slope most favorable to its growth. Arrangement is the very essence of landscape gardening and one may fill a lifetime with observation and study and also with pleasure. (57, pp. 66-67)

Mr. Simonds' Lake LaVerne landscape composition was typical of his reliance on deciduous plant materials. He felt that in general, evergreens were boldly inharmonious in a soft prairie landscape. In his sculptural landscape designs he did not need the variety or contrast which an evergreen would provide. Rather he achieved variety through variation of forms and through quiet variations in color and texture. Contrast was very important in his compositions, and it was provided by the meandering but cleanly defined ground plane. This was a subtle technique and one that was probably sensed rather than absolutely known. Interestingly, it did not make any difference whether the ground plane was a lawn, a path, a road, or a lake. In fact, it was the path or road used in combination with the lawn or lake which gave Mr. Simonds' landscape compositions a lineal and continuing quality. A road which was used to this advantage was the then newly completed road which today encircles Lake LaVerne between the Memorial Union and Friley Hall. Mr. Simonds' use of this road was according to

calculated esthetic purpose. He was not specifically concerned with the view from the road but rather the view of the road. Certainly the relatively insignificant amount of traffic in 1916 offered little opposition to this highly esthetic treatment around the lake.

In a great many respects Mr. Simonds and President Welch paralleled each other in their thoughts about the landscape environment. Their methods of design were varied but their philosophy which generated the method of design was the same. Both designers were absolutely adamant in their conviction about the purpose of a landscape. They recognized the need for utility in the landscape but they positively rejected any form of utility as a landscape end. They believed that without exception a landscape's basic purpose was esthetic inspiration and, specifically, an inspiration which was consciously spontaneous.

E. Spacial Landscape from 1923 to 1950

1. Designers

Professor P. H. Elwood was a graduate of Cornell University, landscape architect for the Agriculture Extension Service of Massachusetts State College, professor of Landscape Architecture at Ohio State University, vice-president of the American Society of Landscape Architects, and head of the Department of Landscape Architecture at Iowa State College.

Professor A. H. Kimball was a graduate of the University

of California and of Massachusetts Institute of Technology, professor of Architecture at the University of Illinois, supervising architect at Iowa State College, and head of the Department of Architectural Engineering at Iowa State College.

Professor R. R. Rothacker was a graduate of Ohio State University and of Iowa State College, horticulturist for the United States Public Health Service, chairman of the Committee for Campus Development and Maintenance at Iowa State College, and professor of Landscape Architecture at Iowa State College.

2. Concept

The spacial landscape designers conceived the College, firstly, as a plan expressing an orderly and logical relationship between use areas and, ultimately, as series of well-organized volumes, each volume or outdoor room "skillfully devised to provide the most useful and pleasant space for its specific function." (56, p. 79) The concept of a spacial landscape was a highly rational concept of order and unity through structure; it was a concept of three dimensional experiences.

By providing limits and definitions for calculated environmental uses, the spacial landscape reconciled the increasingly difficult indefinite continuity of the purely esthetic landscape. In doing so, however, it drastically contradicted the poetic landscape philosophy initiated by President Welch and continued by O. C. Simonds. No longer was the

landscape viewed as a middle-distant ideal. Rather the landscape was sought as a convenient ideal experience. This distinction was basic as it represented a fundamental change in the philosophy which generated a design concept for the College landscape. It was a change from a poetic landscape philosophy to a more prosaic landscape philosophy; it was a change from an esoteric, spontaneous theory of esthetics to a more pragmatic, controlled theory of esthetics; it was a statement about the future twenty-years development of Iowa State College landscape.

The concept of a spacial landscape emerged out of a two dimensional abstraction of the College's needs and goals, and it reflected a desire for order and, respectively, a desire for increased meaning for the College's collective purposes. It follows then that the spacial landscape began with the grouping of related physical objects and human activities into distinguishable use areas and with the arranging of the use areas into a logical sequential organization. In fact, not only were the uses arranged according to logic but the designing process itself was organized according to exacting logic.

After the use areas were analyzed and designated the linkages between them were analyzed. The linkages between use areas provided for the movement of people, goods, and wastes as well as for the communication of information, amenities, or repulsions. In this manner the Agriculture College was conceived as linked to the Engineering College via the amenity of the

central lawn. There were no hard and fast rules as to how and when a given set of activities should be linked together. Here again it was a matter of logic. For instance, the College's residential facilities were conceived as activities which should be convenient to academic facilities of the College, the commercial facilities of the community, and the social facilities of the student union; automobile traffic was conceived as an activity which should be convenient to the academic facilities but separated from the pedestrian use of these facilities. These ideas as to desired linkages were based not only on the interactions between activities, but on general ideas as to circulation, visual form, and site character as well.

The College use areas as conceived by Professor P. H. Elwood, A. H. Kimball, and R. R. Rothacker were logical in disposition and intentionally simple both in pattern and in category. In general, use areas were designated according to their suitability for use along with their suitability for maintenance. Intricacy in definition was avoided in favor of a pattern which would offer maximum convertibility and flexibility. Specifically, what was desired were open areas within which some activity could be assigned which would of itself preserve and maintain the respective open space.

In developing a land use concept for the Iowa State College landscape the designers went beyond the limits of the College site. They studied the density and character of the surrounding community so to relate the College activity

patterns to the larger activity patterns of the community as a whole. To a certain degree the preferred arrangement of uses on the College site depended on the outside links such as vehicular movement, convenience to commercial and other public facilities, or surrounding negative influences.

The pattern of activities which the spacial landscape designers developed in plan and to a limited extent in actuality was the result of a logical total organization of uses and their linkages. The general visual form of this pattern was orderly and efficient in function. However, the character of the designed pattern was highly abstract and, in fact, was based upon the preconceived conventionality of a symmetrical hierarchy or a balanced axis. While the general disposition of use spaces was according to the logical peculiarities of a particular set of circumstances, the pattern or visual form of the total disregarded the detailed consideration of the accidents of the site and small scale individualities of use or form.

Nothing in land use technique requires that all uses of one type must occur in one location, or that they must not be intermixed with other uses. Mixtures of uses may be most desirable for reasons of contrast or continuous use of the site. (40, p. 29)

This is not to say that the general form or logical total developed in the Twenty-Year Development Plan of Iowa State College was ill-conceived. Rather it is to point out the need for a simultaneous development of both a logical pattern which expresses a clear general form and a local pattern which "responds to the details of site activity." (40, p. 33) It is

to further point out the need to recognize alternative general forms such as "the ring, the concentric peak, the radial star, the symmetrical hierarchy, the axis, the line, the constellation of clusters, the network, the checker board, the rectangular grid." (40, p. 34)

The intrinsic formal character of each of these patterns has certain functional implications, such as rigidity or flexibility, dispersed or concentrated communication, specialization or repetition of parts... These patterns once applied can be judged on many counts, but most likely two will be crucial: the accessibility provided between units, which is basic to the functioning of the whole; and the sense of form and organization that will be conferred on the final design, which is fundamental to its esthetic quality. (40, p. 34)

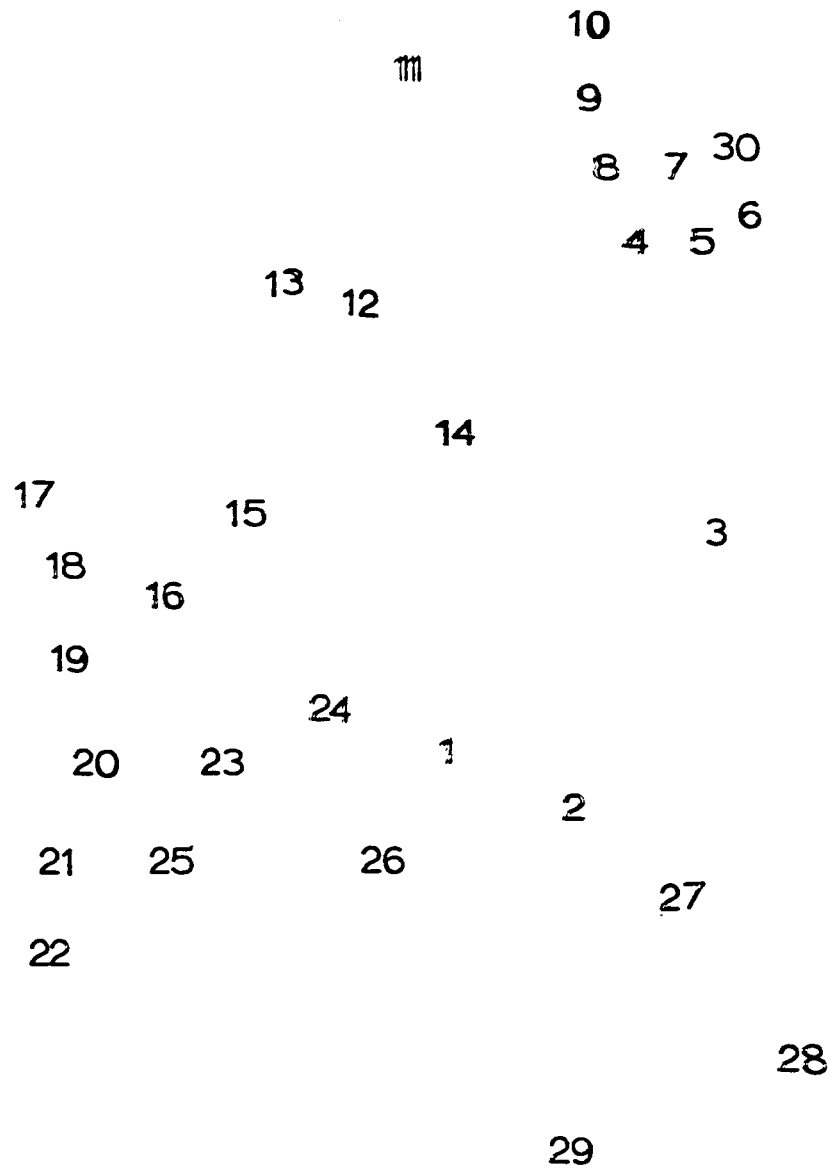
Simultaneous with the development of activities patterns was the development of circulation systems. Use areas by definition were conceived as useless areas without the prerequisite of vehicles or pedestrian access. The ability to reach, leave, and move within an area was deemed as absolutely necessary to the function of an area. Importantly, however, the circulation system was conceived as more than a system of local accesses; it was conceived as a total system intimately related through hierarchy to both the localized activities and the combined activities. "The circulation system was conceived as having the character of defined channels with terminals and interchanges and as having the definition, control, and specialization necessary to handle a specific quantity of flow." (40, p. 39)

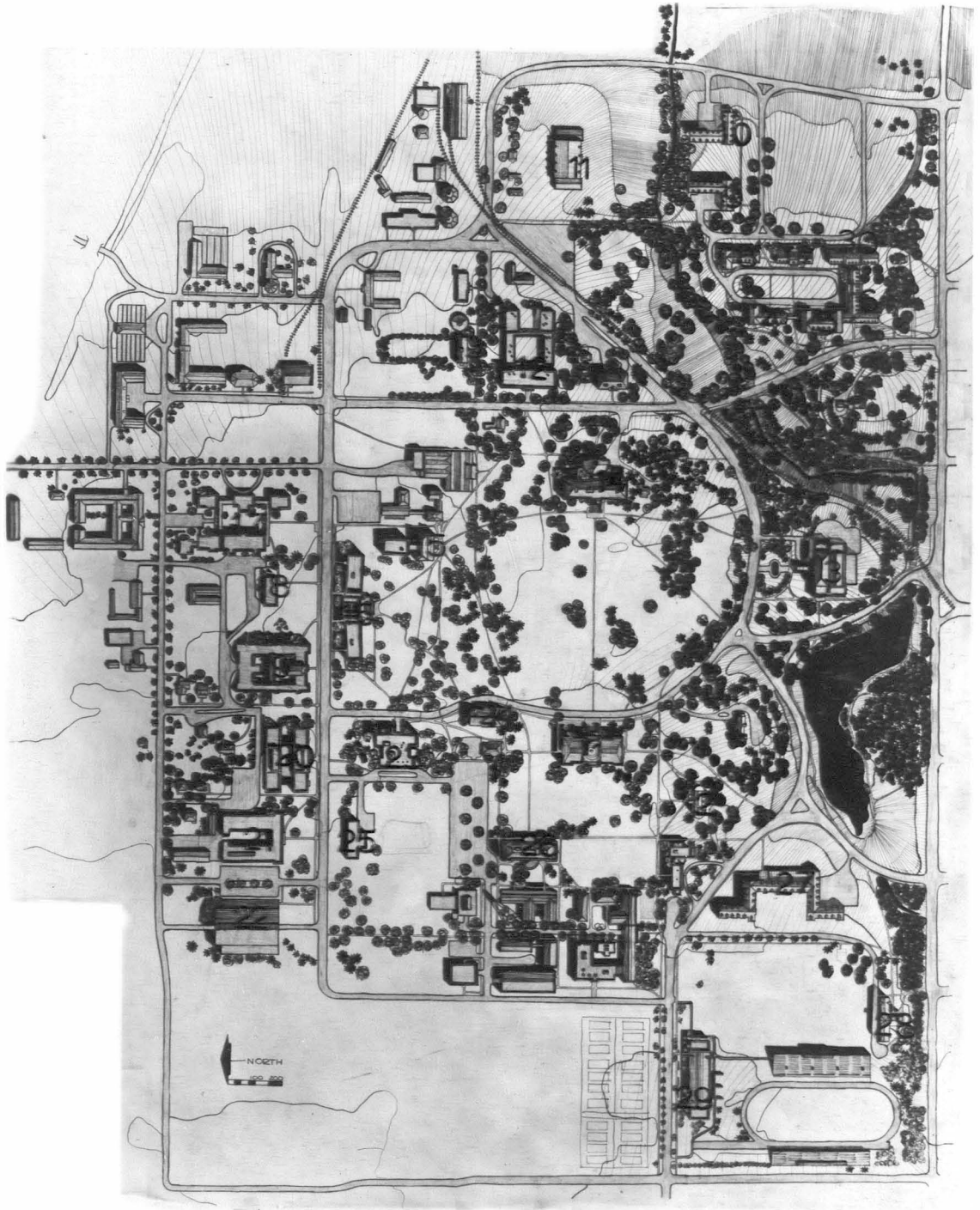
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Figure 8. Iowa State College from 1923 to 1950

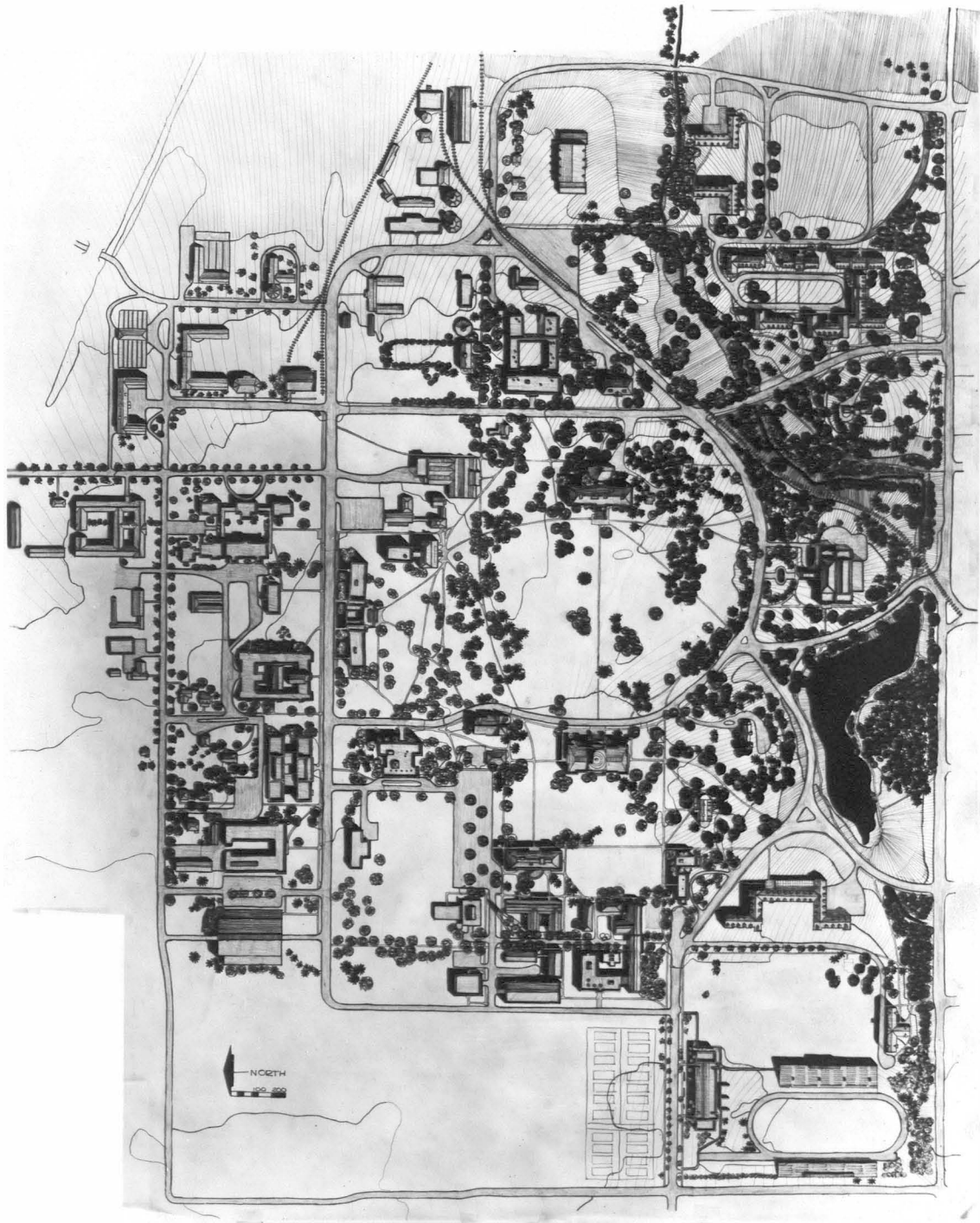
1. Beardshear Hall
2. Alumni Hall
3. Memorial Union
4. Lyon Hall
5. Roberts Hall
6. Welch Hall
7. Barton Hall
8. Freeman Hall
9. Elm Hall
10. Oak Hall
11. Women's Gym
12. Dairy Building
13. Landscape Architecture
14. Curtiss Hall
15. Botany Hall
16. Home Economics
17. Veterinary Quadrangle
18. Science Hall
19. Physics Building
20. Chemistry Building
21. Agricultural Engineering
22. Armory
23. Library
24. Morrill Hall
25. Service Building
26. Marston Hall
27. Friley Hall
28. Hughes Hall
29. Men's Gym
30. Birch Hall

64c



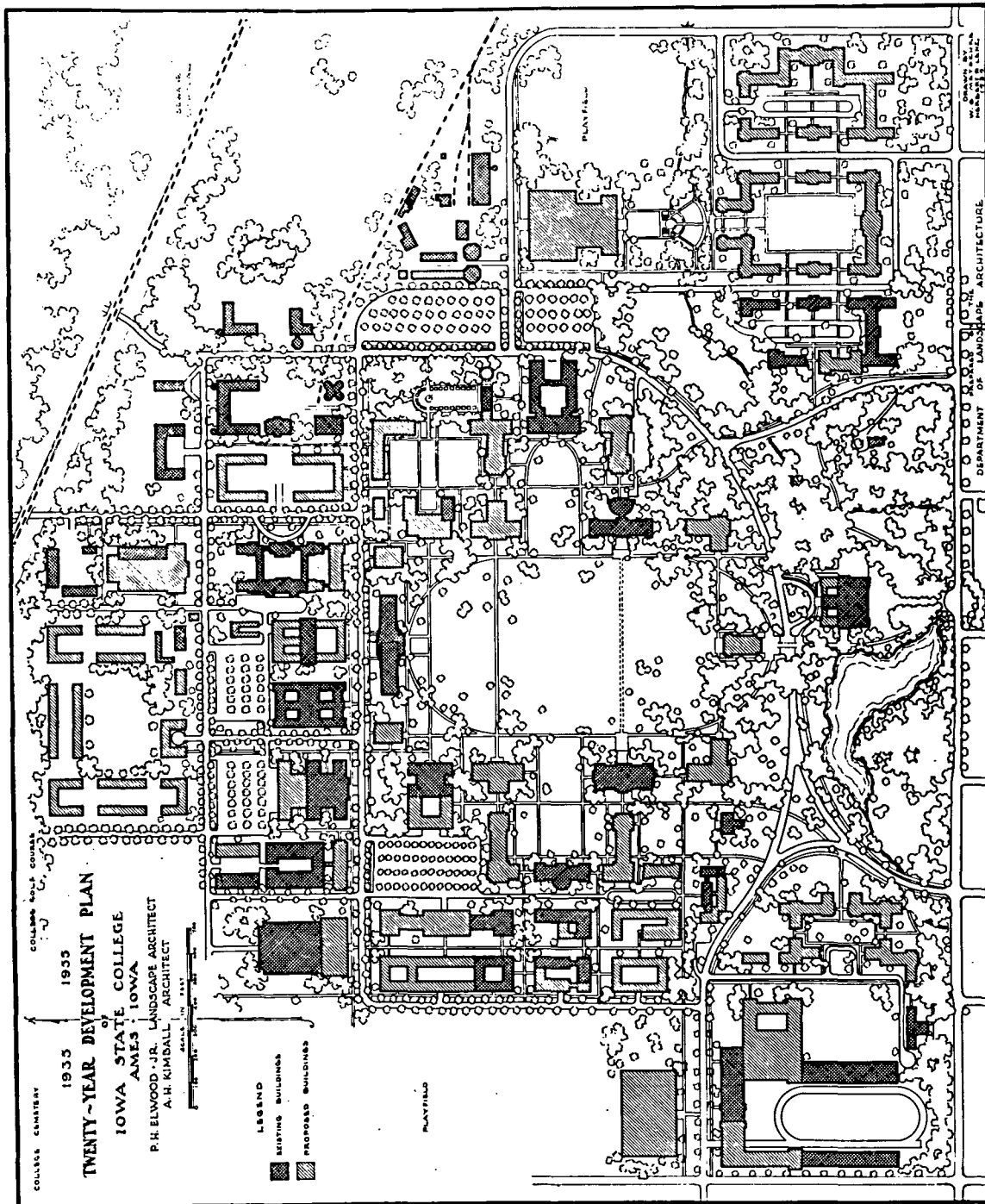


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Figure 9. Twenty-year Development Plan of Iowa State College
from 1935 to 1955, Ames, Iowa



3. Design

In 1932 President R. M. Hughes directed that all of the heads of the College's various divisions and organizations should prepare a self-survey to improve the College program and to estimate future developments and needs. Based on the data assembled in this survey, Professor P. H. Elwood and A. H. Kimball prepared a Twenty-Year Plan for the physical development of Iowa State College.

The purpose of the plan was to present a graphical statement illustrating the designer's interpretation of a comprehensive physical development of the College. The plan was designed with the intent that it should serve as a general guide to the functional and esthetic development of the landscape; it was intended that it should be taken seriously in every statement.

The plan provided for about triple expansion of the College's central campus physical facilities between the years 1935 to 1955. In general, the pattern of the plan reflected a disposition of six basic categories of College activities. The first category comprised the passive activities and included such use areas as the designed central park and forecourt gardens and the preserved Pammel Woods and College Creek. The second category comprised the academic activities and, respectively, three academic use areas. These use areas extended from the periphery of the central park and included the Agriculture College located along the east side of the park, the

College of Science and Humanities located along the north side of the park, and the College of Engineering located along the west side of the park. The third category comprised the residential and athletic activities. These activities included the men's housing and physical education use areas which were located south and west of the central park and the women's housing and physical education use areas which were located south and east of the central park. The fourth category comprised the administrative and social activities which were located in a single use area at the southern extent of central park. The fifth category comprised the agricultural research and maintenance activities which were located in a continuous use area along the Northwestern Railroad tracks and in low lands east of the central park. The sixth category comprised the integrated College-public activities and included such use areas as a football stadium and a theater-auditorium. The graphical statement about the sixth category did not appear on the Twenty-Year Development Map. Instead it appeared on supporting study maps which were drawn at a scale large enough to include the surrounding general community. Primarily, however, these supporting maps were used to develop a comprehensive understanding of the proposed College circulation system.

The basic form of the proposed circulation system was that of the concentric loop. The loop road encircled the central park from Bissell Road on the west to Wallace Road on the east and from Osborn Drive on the north to Union Drive on

the south. The principal entrances into the loop road were via West Street, Welch Road, or Knoll Road. Some of the advantages which the loop road afforded the plan were two choices of direction to each destination, access to a use area without dividing them, continuous progressive movement for service circulation, and alternate exits. Another advantage of the loop road was a convenient distribution of parking lots and separation of through vehicular traffic from the predominantly pedestrian academic areas.

For the most part the Twenty-Year Development Plan has not been followed. Only the broad use areas for the six basic categories of College activities have been generally distributed according to the plan. Also, a few of the landscape spaces conceived in the plan have been constructed. The bold concepts for vehicular circulation and for sequential spaces have not been adopted. It is interesting to note that the amount of area allocated to parking in the plan has only been exceeded in the last couple of years.

Some examples of the landscape spaces which were conceived in the Twenty-Year Development Plan and which exist today in the contemporary College landscape include the forecourt to the Memorial Union and the mall and forecourt to the Landscape Architecture building. In the contemporary College landscape, these landscape spaces exist as localized entities; however, as they were originally conceived in the Twenty-Year Plan,

they were to have been an integral part of a total entity of interpenetrating and sequential landscape spaces. For instance, at the scale of the area the central campus space was conceived as linked to the surrounding prairie space through the interpenetration of ecological spaces such as Pammel Woods and College Creek and through the interpenetration of agriculture spaces such as the flood plain, pasture fields, and Lake LaVerne forest plots. At a somewhat smaller scale the central park was conceived as a contrasting or linking space for the concentric academic spaces. At a still smaller scale the loosely defined landscape spaces such as the foreground to the central park were conceived as linked to the highly defined spaces of architecture through architectural appendages such as a mall or forecourt. It followed then that the circulation systems were conceived as continuous channels which both linked and defined a wide range of spacial landscape scales.

As conceived in the Twenty-Year Development Plan, the enclosing media for the highly defined landscape spaces or outdoor rooms included plant materials, topography, and buildings. However, the enclosing media which was actually employed to define outdoor rooms in the College landscape consisted almost entirely of plant materials. Although the basic form of an outdoor room was usually conceived as rectilinear, the definition of the rectilinear form could be either formal or informal; it could be either symmetrically balanced and geometric or occultly balanced and irregular. On the other hand, neither

the formal nor informal outdoor room was purely one way or the other. Particularly within the formal outdoor room there was always a carefully planned transition from formal to informal. The idea was that the outdoor rooms should flow one into the other visually as well as spacially.

The forecourt to the Memorial Union and the mall to the Landscape Architecture building are representative examples of formal outdoor rooms. In the same manner, the forecourt to the Landscape Architecture building is a representative example of an informal outdoor room. There have been many volumes written and, consequently, many theories developed as to the method of designing an informal or formal outdoor room. The synthesis of these design theories reflects a variation on two design themes, that of the axis and the mass.

In the formal landscape space, the axis dominated an otherwise static enclosure with a rhythmic continuity. It was a symmetrically balanced ninety-degree extension of architecture into the landscape; it was a lineal circulation channel punctuated with arresting nodes; its purpose was both esthetic delight and social communication. Interestingly, the circulation axis in the formal landscape space represented the only conscious effort to direct the local disposition of a circulation channel according to esthetic purpose. The circulation channels were regarded as two-dimensional conveniences for achieving three-dimensional experiences. For the most part then the disposition of the circulation channels at the

localized scale of the pedestrian was according to pure functional reasoning. Thus the ribbons of pavement which cross the central park boldly divide the flowing lawn rather than sensitively compose it.

Whereas the formal landscape space was conceived as an architectural extension, the informal landscape space was conceived as a landscape concentration. The purpose of the informal landscape space was purely esthetic delight; it was designed to capture some of the essence of the natural park. While it is difficult to assign an absolute extent to any given landscape design, it becomes obvious that there are certain limitations within which a given set of circumstances will produce the desired effect. Particularly in the case of the informal landscape space the limitations as to extent are very important. An interesting example of this phenomenon can be recognized in the forecourt to the Landscape Architecture building. Of obvious interest in this design is the mass. In fact, the mass is so interesting that it soon becomes apparent that the mass is the sum and total of the design. It is not the quality of hollowness that arrests our attention as would be the case in a formal landscape space or geometric outdoor room. Without any doubt it is the highly rhythmic and continuing mass which arrests our esthetic desires.

The essence of the informal landscape is not the definition of a hollow by a mass but rather the definition of mass by a hollow. This distinction is very important for two

reasons. Firstly, it gives strong indications that there are certain rather definite limits as to the extent of an informal landscape space. If our esthetic interest in the informal landscape space lies solely in the expression of the mass, then it would seem reasonable that our position with respect to the mass is critical. Obviously, we must be at a sufficient distance so as to be able to see the scope of the entire mass and, at the same time, we cannot be at such a distance so as not to be able to see the detail of the mass. Also, if the mass is going to appear as such then it must have sufficient proportions in length, breadth, and height which lend it the quality of being a mass with respect to human proportions.

The forecourt to the Landscape Architecture building illustrates the significance of the extent of the informal landscape space with respect to human proportion and position. It illustrates a reoccurring phenomenon in many important landscape designs. The forecourt to the Landscape Architecture building, like the pictures in the central park or the scenes through and around the Lake LaVerne sculpture, achieves its deepest meaning when viewed from a distant position. By composing from a distant position, the forecourt lends to the observer a sense of position and thus relates, by means of esthetic observation, the observer to the landscape and the landscape to the observer. Distant position in the case of the informal landscape space was a new sense of scale in the college landscape.

The second distinction in the essence of the informal landscape space is in actuality an inseparable part of the first. If the hollow defines the mass, it follows that the experience of this relationship is of a pictorial nature rather than a spacial nature. This event is unique because it dramatizes the success of three highly different approaches to pictorial landscape design.

Common to each of the pictorial approaches to landscape design was the dominant center of interest and the rhythms and contrasts of texture, outline, and color which built up and supported the center of interest. Also common to each of these approaches was the sense of complex continuity or asymmetrical balance. In the purely pictorial landscape the center of interest was a distant horizon and the supporting rhythms and contrasts were groups of trees and a flowing lawn; in the sculptural landscape the center of interest was a distant building or a near horizon and the supporting rhythms and contrasts were masses of foliage and a meandering surface. In these two approaches the variety of plant materials were necessarily greatly simplified to maintain the integrity of the whole. The opposite was the informal landscape space in which the mass of plant materials was both the center of interest and the supporting rhythms and contrasts. In this approach to a pictorial landscape design the plant materials were highly varied to maintain the interest in the whole.

F. Suburban Landscape from 1951 to 1966

1. Designers

The campus landscape architect's office is staffed with one professional landscape architect and one or more student landscape architects.

The staff which makes up the supervising architect's office varies between one and five professional architects.

2. Concept

A retrospect of the contemporary landscape situation suggests that there is no total landscape concept and, consequently, no local landscape conviction. Instead there is passive rationalism about a series of individual decisions affecting circulation and use needs of the expanding Iowa State University. The conclusion of this rationale appears to be a sentimental belief that a blanket of vegetation will lend visual clarity and meaning to the University's collective needs individually planned.

While there may be some doubt as to whether or not the University's functional needs will be met on the basis of individual decision, there is positive evidence that the University's sensuous needs will not be met on this basis.

What we require is a landscape, technically organized so that its parts work well together, but visually coherent as well, and whose visual image is congruent with its life and action. (39, p. 55)

During the initial years of Iowa State University, most

of the College activities including studying, dining, and sleeping were housed in the Main Building. The proximity animated an intimate intellectual and social life while at the same time it animated desire for a sense of meaningful position in an ambiguous extent of prairie landscape. The articulation of this desire was an esthetic definition of the prairie landscape; it was a series of landscape pictures of composed rural views; it is the contemporary central park. The visual and technological success of this man-made landscape has been proven through the test of time. It reflects the result of a decisive intent to meet the College's sensuous as well as circulation and use needs within the context of social proximity and visual infinity.

The relevance of this event is not that we should preoccupy ourselves with the study of a historical landscape solution, but rather that we can direct the knowledge of a historical landscape concept to dramatize the meaning and value of our contemporary landscape solutions. Clearly the contemporary Iowa State University with its rapid expansion of physical facilities and its segregation and dispersion of activities demands a vastly different concept of landscape change from that of the initial College. Yet the contemporary concept of landscape change with its obvious regard for an individual building in a vegetative setting appears to be an ambiguous reconciliation of the initial concept of a central building in a natural park.

The difficulty is that the University has not resolved present landscape complexities and future landscape uncertainties into a positive statement about contemporary landscape design. Rather the University has resolved the present landscape situation with its complexities and uncertainties into a passive statement about the whittling away of historical landscape designs.

It follows then that there are three issues arising out of the present landscape situation. The first of these involves a piecemeal concept of functional adequacy while the second involves a traditional concept of pastoral landscape imagery. The third issue involves an interaction of the previous two issues and a resulting passive approach to landscape solutions which they affect. For instance, in the case of functional adequacy, new roads are planned with little or no consideration given to such basic questions as whether or not the total activity pattern will encourage or discourage automobile traffic or whether or not it is desirable to encourage or discourage this traffic. In the case of pastoral landscape imagery, the central park is preserved without seeking to understand the meaning of the park and the significance of its preservation in the contemporary scheme. Lastly, in the case of passive landscape design, a suburban pattern of widely separated activities is assumed to be the inevitable conclusion to future adaptability and homogeneity.

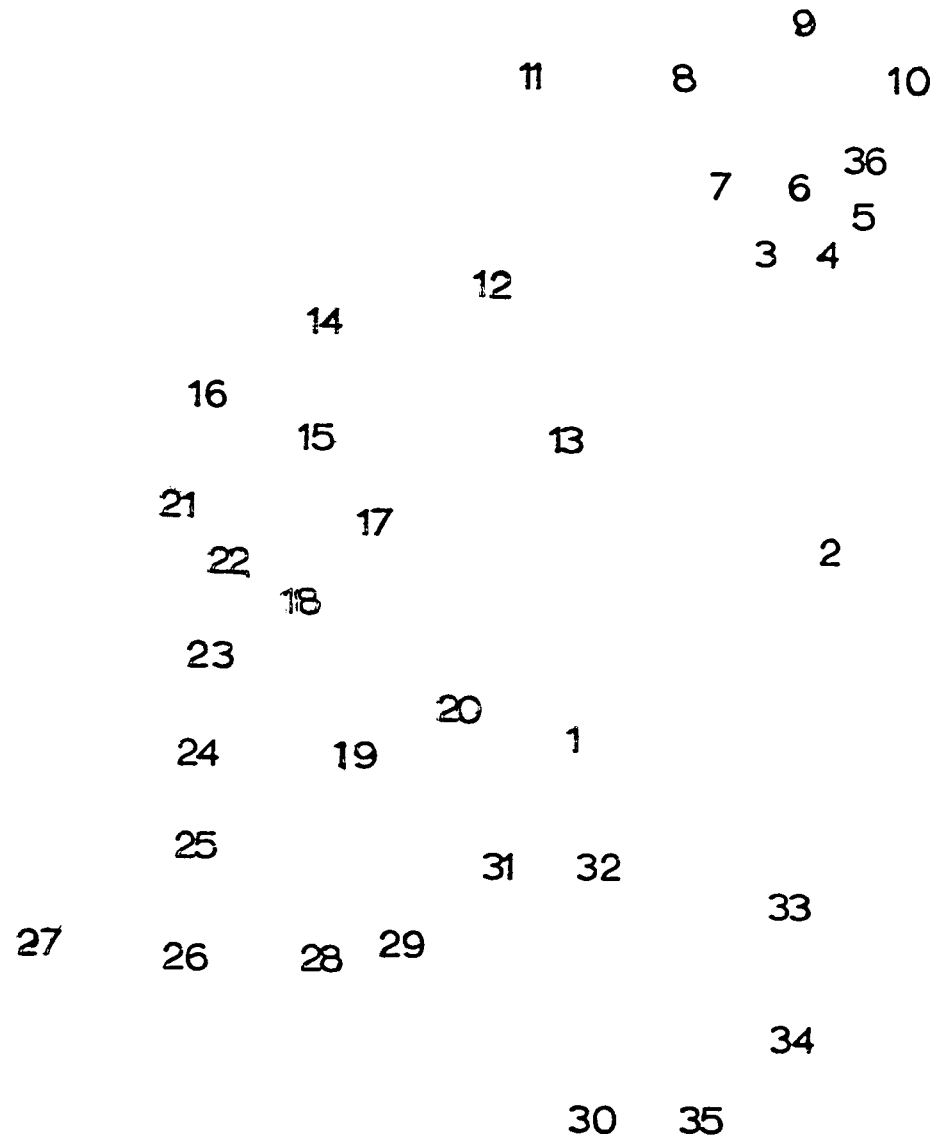
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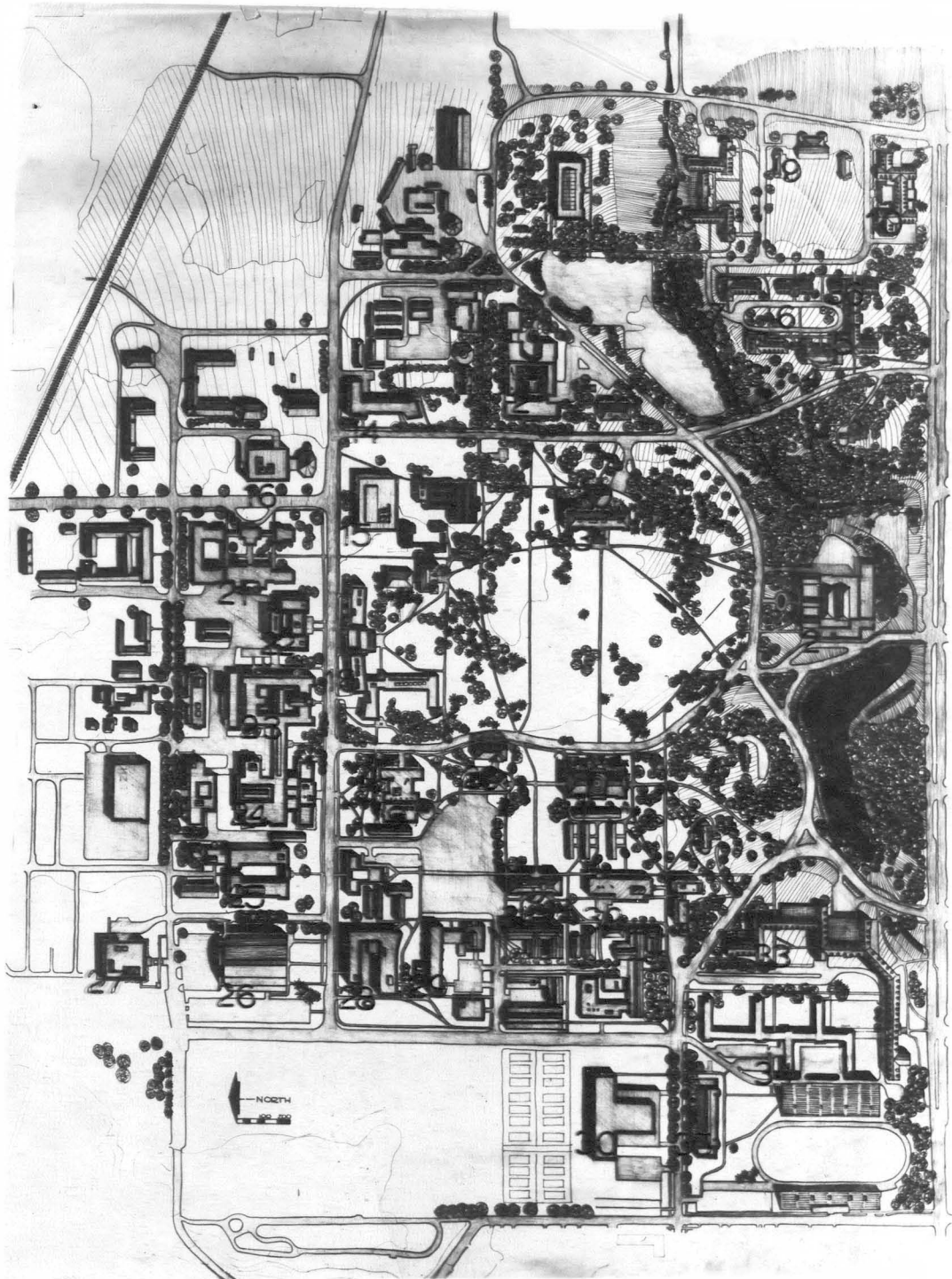
Figure 10. Iowa State University from 1951 to 1966

1. Bearshear Hall
2. Memorial Union
3. Lyon Hall
4. Roberts Hall
5. Welch Hall
6. Barton Hall
7. Freeman Hall
8. Elm and Oak Hall
9. Child Development
10. Linden Hall
11. Women's Gym
12. Dairy Building
13. Curtiss Hall
14. Agronomy Building
15. Bessey Hall
16. Kildee Hall
17. Botany Hall
18. Home Economics
19. Library
20. Morrill Hall
21. Veterinary Quadrangle
22. Science Hall
23. Physics Building
24. Chemistry Building
25. Agricultural Engineering
26. Armory
27. Communications Building
28. Electrical Engineering
29. Sweeney Hall
30. Beyer Hall
31. Marston Hall
32. Pearson Hall
33. Friley Hall
34. Helser Hall
35. Men's Gym
36. Birch Hall

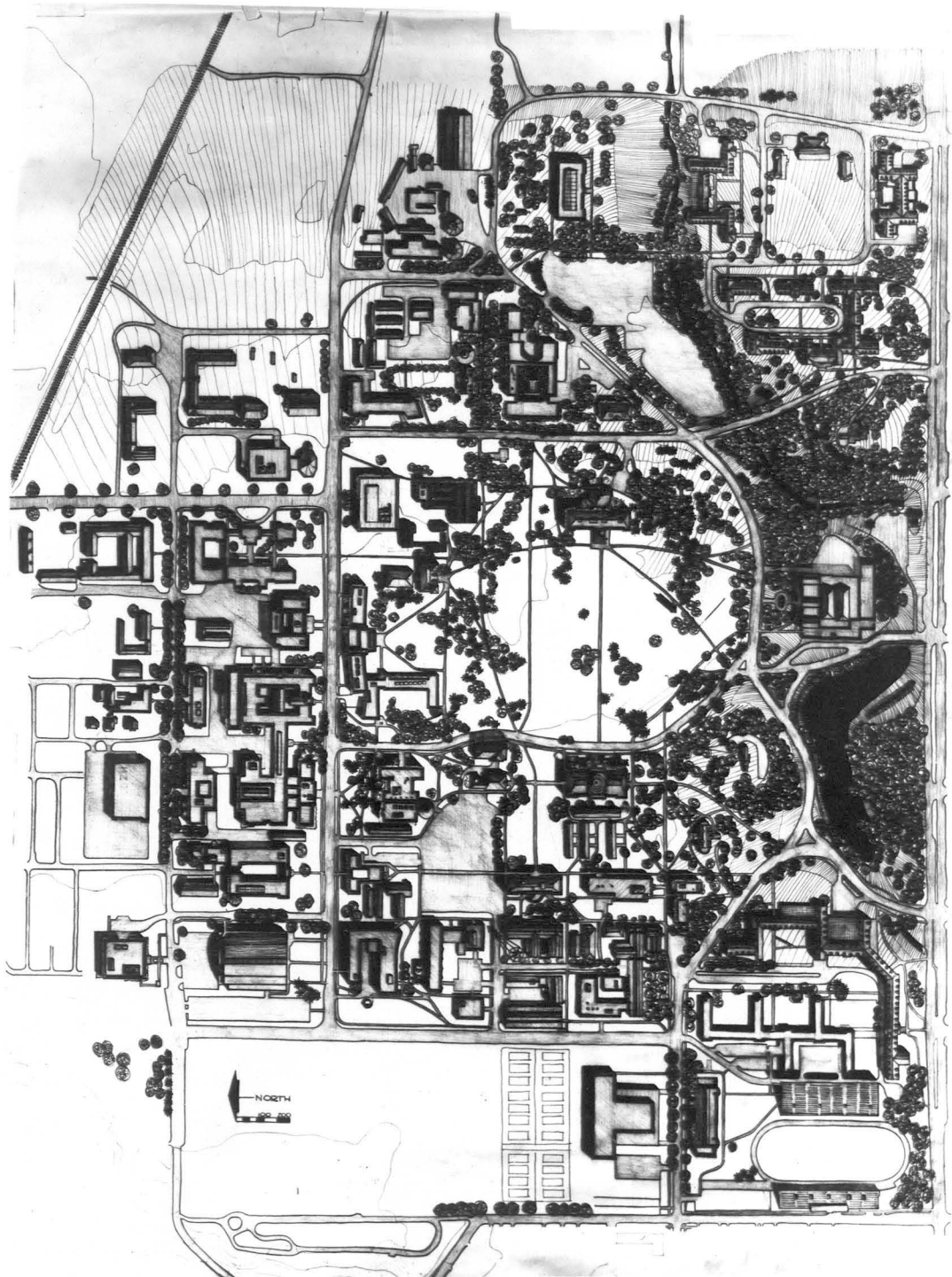
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development of Iowa State University is not a change which is governed by natural laws of growth. Importantly, this change is governed by the will of human intellect. As a result, the question is not whether the University landscape is planned or designed but rather the question is whether the design is piecemeal or comprehensive, equivocal or meaningful, inevitable or controllable.

3. Design

The contemporary Iowa State University landscape design reflects a subtle but nonetheless pure functional approach to landscape design. A landscape design "deals in its essence with three fundamental patterns of location in space: a pattern of activity, a pattern of circulation, and a visual pattern-form." (40, p. 116) Although the contemporary University landscape design has not considered these landscape patterns in the light of a comprehensive design procedure, it has in the light of a piecemeal design procedure considered the first two of these patterns. The significance of this event is that the piecemeal design procedure is clouding the fact that the third visual pattern-form has not been considered as an integral part of the contemporary University landscape design.

In the contemporary University landscape situation, use facilities are unanimously conceived as protected from chaos by a softly defined cushion of outdoor space. Within this context, the addition of a new building or a new parking area is

virtually unnoticed as it is quietly incorporated into a standardized functional design theme of minimum spacial allotment and into a standardized visual design theme of facade unity and plant material variety.

While this contemporary landscape design procedure has created a landscape situation which is neat, soft, and for the most part orderly, it has also created a landscape situation in which the visual pattern-form is limited by superficial esthetic theory. A meaningful esthetic experience is not a reaction to such isolated conditions as facade unity or plant material variety. It is a reaction to a visual and functional whole in which comprehensive purpose has been skillfully controlled. In the case of landscape design, it is the total organization of a space which is loose, continuous, and ever-changing in aspect, and a space which is formed with buildings, earth, rock, water, plants, and light.

The visual success of a landscape situation depends upon the skill in controlling three essential criteria. The first of these visual criteria deals with the building of a mental image. This image is the visual reaction to the great number of objects in an exterior scene; it is the complex Iowa State University experienced as a loose whole. Imagery deals in the broad simple definitions of form which give identity and a pervading sense of place to a particular situation; it deals in generalities of pattern and form which distinguish Iowa State University from the town of Ames and from other colleges and

universities.

The second essential visual criterion of a landscape design is that "it should exhibit a rhythmical continuity: a compositional succession of spaces or textures or objects in which each part relates harmoniously to the next but which makes a constant play of variation of a basic theme." (40, p. 81)

This is a complex phenomenon which involves a balancing of forces and a relating of parts in areas too extensive to be seen at a glance. It involves relating parts by such methods as

...maintaining common scale of space or mass, or simply by similarities of form, material, color or detail, such as common building materials, a homogeneous ground surface, or uniform planting. The parts may further reveal a relatedness through a common single-minded purpose or the impact of a dominant force, such as a powerful climate or a highly organized culture. (40, p. 84)

In the same manner forces are balanced through differentiation, dominance or contrast. Thus a dark and narrow street is related through differentiation to a broad avenue on which it emerges or a quiet park is related through contrast to an intensive shopping center which fronts on it. Related differentiation, dominance or contrast seen in sequence or at a glance bring out the essence of a feature and put the observer in touch with a wide range of experiences. Near may be compared with far, fluid with fixed, familiar with strange, light with dark, solid with empty, or historical with contemporary.

The third essential visual criterion is that the

landscape design should be meaningful. Its parts should be expressive of their position, their function, or of the human values attached to them. Such meaningfulness applied to the University's central park requires that if this pastoral park is desired as a contrasting element in the contemporary University scheme, then intensive and complex use of the park must be discouraged. On the other hand, if this pastoral contrast is not desirable or possible then the central park must be redesigned so as to be harmonious with the contemporary set of circumstances.

The inefficiencies in the contemporary University landscape design are not necessarily the consequence of unskilled or inexperienced design personnel. Rather they are the consequence of an ineffective network of decision and an ineffective program of determinants. Regardless of the skill and experience of the designers, they can only operate within the tolerances established for them by a hierarchy network of decision. Thus in the case of Iowa State University, a fully comprehensive approach to landscape design is possible only to the extent that the opportunity for this approach is created by the networks of command and decision.

The inefficiencies in contemporary University landscape design are also the consequence of a lack of long-range planning. Even at its best contemporary University landscape design can offer no more than partial control over the environment. Importantly, it is subjected to the protracted growth of the

University and to the degree in which long-term control and direction are exercised.

As future building and their uses cannot be known, what is needed is a "generalized plan of land use, circulation, and major space, supplemented by diagrams, statements and illustrative details which will guide the general character of future growth." (40, p. 110)

III. CONCLUSION

For over one hundred years, Iowa State University has been a university in a park; however, in the very near future the park will be an event in the university. While the situation of a university in the park is based upon a pastoral ideal and is conceived as a natural landscape image, the situation of a park in the university is based upon an urban ideal and is conceived as a city landscape image. There is a very important difference between the two images. With the rural image nature is infinite and the landscape abounds in the form of a park designed in a natural manner. The opposite is an urban image in which man is dominant and structure abounds in the form of a city designed for convenience and variety of experience.

Either the rural ideal or the urban ideal could represent a noble aspect of living, but the effect of obtaining the reality of a desired ideal may be limited to the depth in which the ideal is understood. The rural ideal carried to its extreme is spontaneity and irrationality; it is a rural life and a natural pastoral landscape; it is romantic. On the other hand, the urban ideal carried to its extreme is order and control; it is an urban life and a structural or geometric landscape; it is rational.

The initial college environment with its natural landscape and its rural life was romantic in expression. However, at the same time the initial college environment was rational

and carefully planned. The paradox here lies in the conceptual image of the admired ideal. In terms of a human environment an ideal is more than a philosophy, it is a conception and a desired image; it is an image of a landscape which is visible, coherent, and clear. Also, it is a conception which identifies the ideal through organization and structure. In the case of the romantic or natural landscape, the ideal is an image of an infinite natural landscape and conception of a "subtle art which composes the landscape with asymmetrical balance in depth, unity of character, harmony of color, and effect of light and shade." (34, p. 10) In the case of rational or structural landscape, the ideal is an image of a city and a concept of a "multi-purpose, shifting organization, a tent for many functions, raised by many hands and with relative speed." (39, p. 91)

Clearly, substantial new additions can no longer be absorbed into the Iowa State University landscape without disrupting the historical pastoral image and its respective scale, rhythm, and balance. In conclusion, there is little doubt that the University will adopt an urban image. It follows then that the success of the future University landscape design will measurably depend upon the vigor and understanding in which the urban image and its respective scale, rhythm, and balance is adopted.

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APPENDIX A: A REPORT ON THE PROBABLE
FUTURE REQUIREMENTS OF IOWA STATE COLLEGE

June 2nd, 1906

Dr. A. B. Storms,

President Iowa State College.

Dear Sir:

Having visited the Iowa State College, and having conferred with you and other members of the faculty and of the Board of Trustees, as to the probable future requirements of the College, we submit the following report.

We find that the main college campus is unusually large and beautiful.

We learn that when the college was started its first president, realizing that the bare prairie land, however beautiful in itself, was not attractive in its bare state as the setting for college buildings, and feeling the need of shade, of relief from the glare of an unbroken sky, and of shelter from the fierce prairie winds, studied landscape gardening and directed the planting of the grounds with trees.

The original plan appears to have been the simple and natural one of housing the college at first in a large, long building. It was located on the highest available spot, with its long axis north and south and faced east so as to command a good view down a gentle slope, across a wide grassy river

bottom, toward the object in the vicinity having the greatest human interest, namely the little town of Ames, embowered in trees.

The gently sloping lawn east of the Main Hall was left mainly open, but was framed in, diversified and beautified by planting irregular masses of trees north and south of it. Care was taken to preserve vistas from and toward the Main Hall and sufficient, irregular open spaces were left in the more extensively planted southern part of the grounds and elsewhere for varied effects. A sheltering wind screen of trees was also planted along a north and south fence line a few rods back of the Main Hall.

The trees so planted have now grown to practically mature size and what can readily be inferred to have been the designed landscape effects have been duly realized. They are simple and beautiful as everyone who visits the grounds must at once appreciate. The first general plan was well conceived and served admirably for years.

The first modification of the plan necessitated by the growth of the college was not at all a serious one. When some additional minor buildings were to be built, they were located south and west of the Main Hall where they did not at all interfere with the central, open landscape.

The second modification of the plan occurred when several additional buildings of more ambitious architectural design and more imposing height and mass than those last above referred to

came to be built. These were located north and northeast of the Main Hall and were boldly made to take every landscape advantage of the great central lawn by being placed in its borders and faced east and south upon it.

The third modification of the original plan occurred when the large Dairy Building was located at the east or lower end of the great central lawn and faced west upon it. This large building has practically obstructed the only distant view and has had the effect of frankly closing off the landscape connection of the great central lawn with the broad, open slopes and extensive meadows beyond (east).

The fourth modification of the original plan occurred when the large and imposing Engineering Hall was placed well back of the Main Hall, yet not directly back of it, the idea being that there would be some view of the central lawn from it and that it would be seen from many parts of the central lawn.

The plan so inaugurated and modified was similar to that followed at the Ohio State University and at Lawrencevull School, namely a naturalistic park having a central lawn diversified in grades and by groups of trees and single trees surrounded by picturesque buildings of irregular plan and masses and free architectural style intended to harmonize with the irregular masses of foliage and with each other. At Iowa State College, however, there had developed a strong reluctance to placing the buildings on all sides of the lawn. This was

due, however, more to appreciation of the beauty of trees as such than to regard for the greater and nobler beauty of landscape, for the Dairy Building was permitted to block the principal view directly in front of the Main Hall. However, this is done and with the growth of the college it would have been necessary for some building to be placed where it would block that view.

The fundamental conception of a plan or scheme thus developed is admirable. It is commonly designated the "park plan" or "landscape" plan, implying thereby a naturalistic landscape treatment. This is an erroneous narrowing of the meaning of both park and landscape, since both a park and a landscape can be absolutely formal and yet be beautiful, although the people of this country have, with comparatively few exceptions, had but little experience of beautiful formal parks or landscapes.

The plan as so far developed has been very satisfactory and has been greatly admired and would continue to be so were it not for two difficulties.

First, the trees planted were mainly of soft wooded and short lived varieties, so that every year many are broken by storms and rendered feeble and shapeless by crowding, in consequence of which they are gradually becoming decrepit and succumbing to drought and cold and insects.

Second, the college has outgrown and will continue to outgrow the informal landscape plan through increase in the

number of students and teaching force and through differentiation and development of methods of instruction. The result is that many more and much larger buildings are required and the inconvenience of widely separated buildings is more felt every year, and the lawns are more worn out year by year by the enormous increase of traffic from building to building.

Moreover, a marked change of fashion in architecture has occurred, as a result of which the newer buildings besides being much larger than the older ones are now designed in the exceedingly formal, classic style and with very pronounced symmetry in at least the front elevation. The increased size of the building tends to make them out of scale with the trees and lawns and being constantly more numerous the buildings dominate and supersede the comparatively small and modest naturalistic landscape treatment. The formal buildings come to demand, most obviously and urgently, formal relations to each other, and their symmetry cries for recognition in the laying out of the roads and walks and plantations among the buildings.

While it seems inevitable that good taste required that formality and symmetry of design should be increasingly evident in the grounds between and immediately about the buildings it does not follow that the naturalistic park landscape at a greater distance from the aggregation of buildings should not be preserved and extended, particularly in the broken southern part of the campus and wherever the ground is rolling and

irregular.

The first difficulty although distressing and important requires only time and intelligent effort unremittingly applied to be overcome. It can be and is being mitigated by gradually cutting the poorer trees and replanting wherever desirable with oaks and long lived trees.

The second difficulty is a great one, and while matters have perhaps gone too far to enable an ideal and perfectly satisfactory plan to be devised and carried out yet if the principles of design and the practical requirements of college business are clearly appreciated and constantly applied, reasonably creditable and satisfactory results can be looked forward to. It will soon strike anyone approaching the problem from this point of view that certain of the informally designed buildings will, in time, through the erection of classic style buildings about them, come to have an aspect of incongruity which will imply that they must be removed when the college can afford to do so.

We may mention, by way of illustration rather than as a complete summary, some of the ideas or principles which ought to have careful consideration in connection with planning the grounds and buildings.

First, the students' working buildings should form a central nucleus corresponding to the business center of a town.

Second, the residential buildings should be relegated to an outer zone.

Third, the business buildings should be assembled according to their uses. The main lecture room buildings, corresponding to the office buildings of financial institutions in a town, may be given central and prominent locations, as can also the library, the chapel, the administration office building, when there is a separate one, and others the purposes of which are quiet and dignified and for which a relatively costly and formal style of architecture is appropriate. Those studies which require laboratories, involving disagreeable noises or smells, or for which more or less cheap and temporary accommodations for experimenting or storage and like utilitarian purposes may be needed, from time to time, should be accommodated in buildings so situated that they can have rear premises without offense to the appearance to the grounds as a whole. Some of this class of buildings may often best be a little out of the center, as are usually the factories of a town.

Fourth, the business buildings should be distributed according to the department of instruction. If the buildings were small and numerous rather than large and few, this would often be looked after better than it is and with less confusion. In that case there might be a radiating street for each department and as it grew it would naturally expand outward along its street instead of pushing circumferentially into its neighbor's territory. The idea is simple enough and when once appreciated, it will doubtless govern the selection of sites fairly well hereafter.

The Engineering and Agricultural Departments will need most space reserved for expansion, but they should spread outward and not across into the space needed for the expansion of the Departments of Languages, of Elementary Mathematics, Chemistry and other Sciences common to two or more Departments, not to mention Physical Culture which so far as it is conducted in a gymnasium ought to be centrally located and to have room to expand.

Fifth, until such time as the appropriations are large enough in proportion to the accommodations to enable buildings to be thoroughly fireproof throughout and of first class materials and of dignified size and proportions and style, they should be limited in height, to lessen the danger of loss of lives in case of fire and they should be of modest yet respectable materials, such as brick, and unpretentious, yet by no means displeasing architectural design. Taking the country as a whole, there has been a notable improvement in the architecture of municipal schools, while many city halls, county court houses, and we regret to say, many college buildings are pretentious, but obviously very cheap, imitations of costly cut stone architecture. Their columns and porticos and cornices and domes and cupolas are but little more durable in material or painstaking in workmanship than the frankly temporary buildings of the World's Fairs. College professors should have too much intelligence and taste and love of honesty to endorse wooden or galvanized iron imitations of stone architecture.

Sixth, a sufficient similarity of materials used for the exterior of buildings and in architectural style should be maintained to secure a harmonious general effect. An almost riotous license has prevailed in many of our most prosperous colleges which has reduced such a hodgepodge of architectural units as to be more distressing to persons of cultivated taste than the architectural beauty of individual buildings is gratifying. Some of these incongruities are being mitigated by tearing down the older and less costly buildings, and the fundamental necessity of a general harmony, with only local and minor contrasts, is far from being recognized by college architects and administrations.

Without going further into principles of design we will record some practical advice which may be of service in guiding the physical growth of the college.

The first difficulty when we come to the application of principle of design is the existence of a dummy railroad right in the ornamental front lawns of some of the most important buildings. It is convenient,--very much so,--but so are sewers and stables. For the same reason that we intelligent and refined Northerners do not admire the very convenient and economical open sewers in front of the dwellings of New Orleans and other semi-tropical cities, and for the same reasons that we would make its residents averse to an electric railway through Vandeventer Place or Westmoreland Place in St. Louis, or Fifth Avenue adjoining Central Park in New York, all concerned ought

to feel willing to accede to the removal of this railway and to the location of a modern electric railway back far enough of, that is north of, Margaret Hall, to leave room for needed additional working buildings. There could be a break in the lawns between what might be the college campus proper and its outlying dependencies. But to deliberately lay out a new electric railway with its long, heavy, dangerous, noisy, vulgar and conspicuous cars, directly in front of handsome college buildings, cutting through their refined and beautiful broad lawns would seem to most intelligent and unprejudicial people an almost incredible yielding of love for the beautiful and appropriate to a blind, narrow-minded greed for utility and personal aversion to even the exertion of walking say 200 yards. If it had not been for the existence of the old dummy road, we doubt if the idea of running a great interurban electric railway close to the fronts of important college buildings and destroying the beauty of the lawns would even have been proposed, much less ardently advocated or selfishly assented to by professors and students. True, the wishes of professors and students should ever receive respectful and careful attention from the Trustees, but we take it Trustees are appointed not to carry out the will of a majority of the professors or of the students, whatever it may be, but to use their best judgment and to decide in view of the future as well as with regard to present requirements and conditions. Colleges are permanent

institutions, as a rule. They grow and change but much of what is done now will aid or hamper, beautify or permanently disfigure the grounds and through them part of the enjoyment of life of untold numbers of teaching force and students for many generations to come. Public opinion and that of the college community would, we firmly believe, always regret the decision (if it should be made) of the Trustees to allow the new interurban electric railway to run through the lawns and among the principal college buildings. The incongruity would inevitably become more marked with the erection of each new large, handsome college building in the future. We earnestly recommend that the location asked for by the new interurban electric railway be not granted, but that a location north of the college buildings that will accord with a reasonable plan for the disposition of future college buildings, such as that we shall now partially describe, be offered them. In closing our professional protest against the location of the proposed electric railway south of Margaret Hall, we beg to assure the Trustees, through you, that the electric railway, if so located, will very greatly interfere not only with the plan for location of future buildings which we shall advise, but we have been unable to think of any other disposition of buildings, that would be satisfactory, that would not be interfered with by the location of an electric railway as proposed. In other words, we believe the location proposed was devised to meet present commercial requirements and with little

or no regard for any reasonable or suitable plan for the disposition of future college buildings. We certainly could not recommend the Chemistry-Physics Hall to be where we have planned it, if the electric railway is to be there. Various sensitive instruments could not be used and many delicate experiments would be vitiated or become impossible in such close proximity to an electric railway. Most likely the college would have to spread its buildings over the beautiful lawn, and into the picturesque park, to avoid the electric railway, if located as proposed.

Hereafter, there should be a more orderly disposition of buildings and if present fashion controls there will be more symmetrical buildings, so that the motives of an architect in squeezing the heterogeneous requirements of the interior accommodations into formal and symmetrical exteriors ought to be followed in the placing of buildings, with respect to each other.

The relation of the Engineering Building to the Main Building is not as formal as it should have been to correspond with the symmetry in design of each of these buildings. The two buildings are parallel with each other but "staggered", as the mechanical engineer would say, so as to give the Engineering Building a view upon the central lawn and conversely to enable it to be seen from it. This is an idea and a good one for informal and smaller buildings, such as professors' residences, but its application in the present case is unfortunate

in its results. More and probably still larger formal buildings have yet to be located.

We advise that sites for four large buildings be reserved, in two rows, two buildings to be north of Engineering Hall and two north of Main Hall. Let that next north of Engineering Hall be rather near to it, say within about 60 or 80 feet of it. This we think should be a long building, north and south, with two wings, projecting westward, and should be for chemistry and physics, the northerly part being for chemistry.

In the Main Building row there should be a large building with its center directly east of the center of the Chemistry-Physics Hall. This building in continuation of the class of buildings devoted to the Humanities and not requiring laboratories should, we think, be a joint library and museum, so planned that in time the library with its reading and study rooms may take more and more of the building, so that eventually the Applied Art Department may be moved into another building. Probably the best idea would be to make this building in a series of units around one or more interior courts, which could when completed be roofed and lighted from ampleclere story windows or by skylights. Its situation is such that it should have two fronts, facing east and west. While centered on Chemistry-Physics Hall it could eventually be much longer. It might even extend south to a point as far north of the east and west axis of Engineering Hall as the north end of the Main Hall is south of it.

North of the Chemistry-Physics Hall would be a site which might be occupied by a somewhat temporary Assembly Hall. We believe it is hardly worth while to have such a building of monumental construction and design, since its purpose is to contain, as a single audience, the whole body of students and instruction force and numerous visitors. It would perhaps be best to have a steel and wire lathing and cement roof and ceiling that would be non-inflammable and yet not too costly to replace when the need arises, as it surely will. When it is to be superseded, this site may be in more pressing demand for a science laboratory building. In that case the larger assembly hall can be erected further from the central buildings.

The corresponding site east of this in the Humanities Row can be used for a School of Pedagogy or for a school of Arts and Crafts or Applied Art or of Music or Oratory or some other profession.

Directly back of the Main Hall and south of Engineering Hall is a site which calls for a small building. This might perhaps be an office building, for doing business with the students particularly. It would relieve the Main Hall from this burden and enable it to be devoted more exclusively to lectures and studies. Possibly it might not be as convenient for the students. If so, it might be used for faculty and committee meetings and for the President's office, which would leave space in the Main Hall for lecture purposes.

Further south in the science row, there would be a site

for a Mechanical and Electrical Engineering Hall, similar in size and style to the present Engineering Hall and correspondingly related in distance and direction from the Main Hall.

When still other buildings of the same dignified size and style are needed for the Department of Engineering, it is likely that they would better be west of the Engineering Hall in a row parallel with it and far enough to leave a large "back yard" sort of area for one-story, cheap shops and sheds and odds and ends. It may be this ugly area could be partially closed in and to a great extent hidden by additional goodlooking buildings along the north and south sides of the rectangle or square. This should be studied, and if feasible, kept in mind. Presumably the north side of the northerly buildings should line with the north side of the present Engineering Hall and the south side of the southerly buildings with the south end of the future Mechanical and Electrical Engineering Hall.

It has been contemplated that the athletic and baseball field, now crowded by Engineering Hall should be given up and a new athletic field located in the nearly level land in the southwest corner of the college campus. This may do for a term of years sufficiently long to fully justify the eventual relinquishment of the ground for buildings and the transfer of the Athletic Field to some distant location either down toward the river or north of the railroad. Its great convenience, especially after the proposed electric railway has been run, as

we have recommended, along the side west of the area where the Grand Stand would be, is certainly sufficient to warrant running the risk of having to lose the investment eventually. The fact that it is nearly all underdrained already would make it cost less than a site near the river, which moreover would have to be dyked and at times drained by pumping to make it available.

The most convenient site for a men's gymnasium would seem to be southwest of the present Engineering Laboratory and at the northeast corner of the Athletic Field. It should be considerably further south of the straight east and west road than the new Social Hall, because it may prove necessary to move that road south to make suitable space for the proposed Mechanical and Electrical Engineering Hall.

When the more pressing needs of the college for students' working buildings have been met, we believe the policy of building dormitories will be inaugurated. When sites for dormitories come to be in demand, it seems clear enough that the women's dormitories will be north of Margaret Hall, but far enough from it to leave space for working buildings for the women students. The men's dormitories would best be in the nearly level area that would remain between the westerly row of Engineering Department buildings above referred to and the west boundary of the college campus. Both men's and women's dormitories if long and narrow should run north and south so all rooms will have sun either morning or afternoon. Each of the

men's dormitories should be centered on the east and west axis of either Engineering Hall, Main Hall or Mechanical and Electrical Engineering Hall, or else the space between them should center on one or the other of these axes, and the north ends of the northerly ones should line up with the north end of Engineering Hall and the south ends of the southerly ones should be on the east and west line correspondingly south of the east and west axis of Main Hall. In this way an orderly grouping of buildings will eventually result which will always prove more satisfactory in every way than the irregular, hand to mouth, short-sighted way of locating each building without regard to the many other buildings which the needs of the future will cause to be erected.

It would seem reasonable to lay out definitely what may for convenience be called a street, only it would be mostly turf, 80 feet or 100 feet wide running east and west immediately north of Engineering Hall and another equidistant south of the east and west axis of Main Hall. The latter may be wider than the other so as to center exactly on the Social Hall around which the little roadway can pass by a gentle curve. The Social Hall can be considered as the eastern terminus of the southerly straight road. This location of the southerly road will determine the north side of the Men's Gymnasium, if it is put near the northeast corner of the new Athletic Field.

There would be another open strip or street probably 100 feet or 150 feet wide extending northward from the central

lawn just east of the suggested large Library-Museum building. The next large working building for women could face west up this. It is assumed of course that Morrill Hall being poorly built and out of harmony in style, presumably, with the new Library, would be eliminated, but the new Library could be finished first. Another grassy street running north could be reserved between the present Agricultural Hall and Margaret Hall. It should be 100 feet or 120 feet wide. If located next the Agricultural Hall, there would be a space west of it for another women's working building facing east.

There would remain a site for another women's working building between the two suggested and facing north toward the street, about 100 feet north of the existing east and west little roadway. In this street would, we think, properly be the electric railway as suggested in our preliminary report.

The women's dormitories would best be placed around an open rectangle north of the electric railway street. There could well be two long ones running north and south on the west side of the quadrangle and two on the east side with square buildings in the middle of the north and south sides. The dormitories unless fireproof should be only two stories high. To give greater accommodations they might be longer than usual, but they should be so designed as to express their residential character, as by low ceilings, compared with the working buildings, bay windows, balconies, chimneys for open fire-places and the like. They should in fact have a decidedly domestic effect,

avoiding the usual plain barracks or factory aspect so common in college dormitories. It would be economical to have a central dining hall and kitchen at the middle of the north side and a social hall in the middle of the south side.

The next wide grassy street would be east of the present Horticultural establishment. The space between this street and that last described would not be very large but would probably be sufficient for both the Biological Department and the Horticultural Department. It seems the best available place for these purposes. Botany, Zoology, Physiology and other sciences of vegetables and animal life should have adequate recognition and should eventually be provided with laboratories and collections. Biology and Horticulture might be at first accommodated so far as lecture rooms and professors' studies are concerned in a building together here, instead of having Botany accommodated in the top story of the Main Hall along with the Humanity studies. If after further study the space here should prove inadequate, these Departments might be provided for northwest of Engineering Hall, although the space would be limited by the cultivation patches of the Department of Agriculture, unless it should be decided that these experiments could be transferred to some more distant ground.

It has been proposed to locate an Animal Husbandry Building on the knoll in the southwest corner of the pasture east of the road that crosses the railroad. This appears to accord well with the general plan which we have outlined, but

care should be taken to keep it well south of the proposed electric railway street and on the east side of the proposed grassy north and south street east of the present Horticulture Building. The location of the proposed new Agricultural Hall would influence the location of this 120 foot grassy street and be affected by it. The two should be considered together and when determined the proposed Animal Husbandry Building can be located to fit the proposed street. Unless there is some reason to the contrary, the center line of the road to the railroad may as well be taken as the axis for the reserved space, the new Agricultural Hall east wing being kept 60 feet west from this center line and the west front of the Animal Husbandry Building being kept 60 feet east of it. The grade of the Animal Husbandry Building should be established with due regard to the probable profile of the electric railway street, and probably that would require that a few feet in depth of the top of the knoll should be cut off. The land southward of this is conveniently located for an important future building of the Department of Agriculture, but is in need of grading. It will help it greatly to set the new Animal Husbandry Building lower than the present surface of the knoll and to use the earth to fill up the low ground. There would be sites for two or three agricultural buildings. They should if possible have imposing front buildings but may have work shops or laboratories in their rears.

The proposed Agricultural Hall, already authorized, is to

be longer than and perhaps fully as imposing as the new Main Hall, recently occupied, and it will be closely similar to it in architectural design. Such a building is far too important to appear to have been placed casually on a little rise of ground and without symmetrical relation to the new Main Building. Clearly a decent regard for art requires that it should be so placed as to be on the axis of the Main Building, and facing it. It cannot for reasons that are obvious to anyone familiar with the conditions, be placed in symmetrical relation to the Main Building in any direction from it except east. It is true there are disadvantages in placing it at the lower end of the central lawn facing the Main Building, but the advantages far outweigh the disadvantages.

Without having studied out a comprehensive plan for the disposition of numerous other buildings which will probably have to be built hereafter, it seems a reasonably safe proposition to keep this building far enough west of the new Dairy Building to permit the extension southward in a straight line of the straight road already existing just east of Horticultural Building. This will minimize the disadvantages of seeming to somewhat efface the relation of the Dairy Building to the central lawn. There will still be a broad and handsome view of the central lawn from the Dairy Building past the north end of the proposed Agricultural Hall and plenty of good views will remain of the front of the Dairy Building from the northern parts of the central lawn, and doubtless eventually a

sufficient view will be opened up to and from the Dairy Building past the southern end of the proposed Agricultural Hall by the partial thinning out of existing trees at present needed for screening the small residences existing there.

Located as proposed, the finished grade line along the west front of Agricultural Hall should be raised by filling to about 5 or 6 feet above the existing surface at the middle of that front. (Less at the ends.) The slope of the ground toward the east is such that to preserve a desirable degree of harmony with the landscape conditions, the finished grade line along the east side of the long part of the building ought to be about three feet lower than we have advised for the west front, and at the east end of the proposed projecting wing at the middle of the building, the finished grade should be about two feet lower yet. It would even be reasonable to have the finished grade along the east front of the building low enough to expose the whole basement, thus making it possible to plan useful lecture to other students' working rooms in it.

If some other adjustment of the finished grade along the east front of the building is not made, it will be, we can only suppose, from motives of economy in the construction of the building. Such an economy we can hardly believe to be wise or necessary at the expense of the good appearance of the building in its relation to its surroundings, including not only the ground surfaces but trees in the vicinity and especially the Dairy Building. This is just one of the points of design in

which the Trustees and Professors are liable, through lack of sufficient experience in such special matters, to yield to the idea of economizing in masonry and fall into the irremediable error of setting the building too low, or of necessitating the creation, by filling, of ugly grades and a gawky relationship of the building to the local landscape, of which it will become the dominating feature. We venture to lay particular stress on this important matter because we did not have a conference with the architect, and as we have known of many cases in which architects have set buildings too low in order to save in expense of foundations, or have insisted upon a level grade line all about the building when a slight slope would have been much more harmonious with the landscape, and also because we noticed that the Dean of the Department of Agriculture had become so impressed with the same application of the motive of economy as to have seemingly lessened his fear of producing an ugly result in the way indicated. In short the question of grades about this building is an unusually important and difficult one, and we recommend that we be authorized, after learning, through correspondence, if possible, of the views of the Dean and of the architect, to prepare grading plans for the surroundings of this building. If this is to be done, the area likely to be affected, and a margin of about 200 feet in addition, extended eastward to the east side of the circuit drive, should be cross-sectioned at intervals of twenty-five feet and trees located and a plot sent us as soon as possible.

The fact that the large area remaining free of important working buildings in the southern part of the college campus is so irregular in topography and that it is well furnished with the trees originally planted, makes it exceedingly desirable to reserve it mainly for landscape effect.

Another objection to having buildings in this part of the campus is a practical one, but in its bearing upon the beauty of the landscape it is a very important one. This is that if there are buildings there it will inevitably follow in time that the great natural lawn will become traversed in many directions by short cut paths and these would for the most part have to be improved as a matter of comfort and convenience into regular walks with hard, smooth pavement. This may seem incredible to many who hardly notice the few short cut paths now being worn in the grass, but we have had occasion to study this matter in many cases for years and we cannot too strongly express our conviction that buildings on the south side of the central lawn will inevitably lead to cutting it up with broad walks. The location of the new Agricultural Hall as proposed will compel the laying out of a walk east and west through the southern part of the lawn. This can be laid out on a long graceful curve with branches at each end to meet the requirements of foot traffic, and by keeping it slightly depressed and somewhat among groups of trees existing or to be planted, it will be comparatively unobtrusive. No doubt other walks will have to be laid out from the new building to other points. All

this is bad enough, but a moderate area of lawn between the new Agricultural Hall and Main Hall can be kept free of walks. If more buildings are put around the south side of the central lawn, a great part of its natural beauty would unquestionably be lost by cutting it up with walks. With the limited number of students having occasion to cross the lawn the wearing of short-cut paths has not been marked, but the trouble is bound to increase faster than the increase in the number of students and teaching force. The present Music Hall should be eliminated from the south side of the central lawn as soon as other provision can be made for music.

We suggest that the present Veterinary School be altered and improved into a hospital for students. The new Veterinary Hospital can be in the southeastern part of the college grounds, away from all other buildings and frequented grounds and convenient of access for persons bringing diseased animals to it. It should be surrounded by trees, but not shaded by them.

It does not seem to be a good policy for the college to provide its teaching force with dwelling houses, for various practical reasons, but certain attendants of barns and green houses must live close to their work, as they are liable to have work at any hour of the night as well as during the day. These cottages are not necessarily large. If they are made of wood, they can be moved when necessary at no great cost, so it seems well to have them close to the working places their occupants

have to go to, but generally a little further out from the central lawn. By suitable planting they can be made unobtrusive.

Many other topics might be discussed, but we must leave them for consideration as they arise.

Yours respectfully,

(Signed)Olmsted Brothers